

THE AUTOMOBILE

Only Two Teams Perfect in Glidden



The Start of the Glidden Tour from New York, the Maxwell Team Waiting at the Line



Governor Hoke Smith, of Georgia, and Governor Woodrow Wilson, of New Jersey, Tourists on the First Day's Run

ROANOKE, VA., Oct. 17—Special Telegram—Mud and hospitality combine to make the Glidden tour up to this city one of intense interest to those who are accompanying it through the vicissitudes of the route. There is a unanimous opinion current among the tourists that the contest is sufficiently eventful to satisfy the cravings for excitement and discomfort of the most exacting. The invitations which pour in amply uphold the reputation of the hospitable South and go far in alleviating the dismal feelings and thoughts inspired by the tropical downpour which has met and all but conquered the Glidden tour.

Four days of the tour are now past, and in the expectations of all the worst is yet to come as far as the condition of the roads is concerned, as the rain is falling heavily over the districts through which the tour is scheduled and there is no apparent relief in sight. Many of the tourists are of the opinion that a delay will be necessary to allow the streams to sink back to their normal level after the terrible rains of to-day. The fords are in many cases so high that the magnetos are flooded whenever an attempt is made to cross them; while in other cases the roads themselves are gushing streams.

Engine troubles have been few, nearly all the delays being directly traceable to the heavy roads through which the cars have bravely struggled and the number of perfect scores is remarkable when the stringent conditions which have arisen are considered. Many teams have imperfect scores owing to the fact that one of the cars in the team fell a victim to the heavy going of to-day while the other two managed to reach the control to-night on time, which is all that is required to escape penalization. There are now but two teams remaining with perfect scores; they are, the Tarrytown team consisting of three Maxwell cars and the Waltham team composed of three Metz machines. To-day's run was responsible for the slaughter of the perfect scores, that part of the road from Natural Bridge to this city doing the



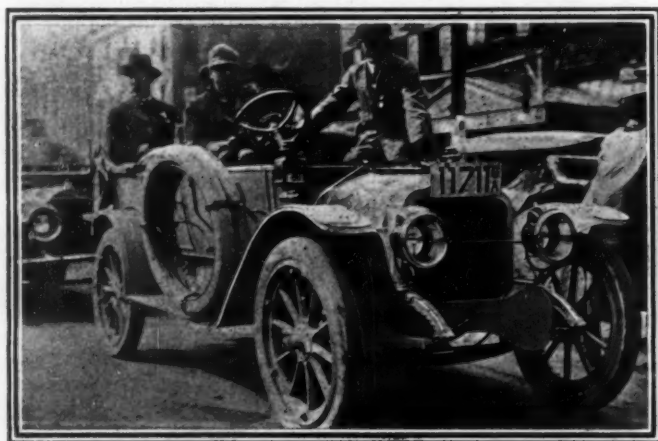
Gliddenites in the checking station at Trenton, N. J., on first day's tour

work. Had it not been for the cloudburst all would have been well.

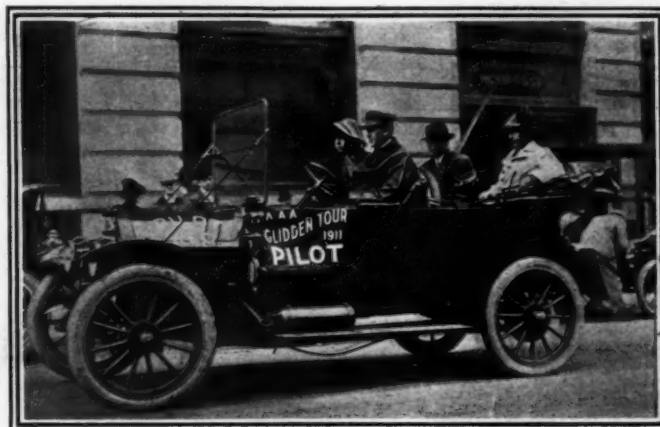
Up to a late hour to-night the following cars had not checked into the Roanoke night control: No. 6, Thomas; No. 8, Flanders; No. 14, White; No. 18, Garford; No. 29, Cadillac; No. 42, E-M-F; No. 50, Maxwell; No. 55, Flanders, and No. 71, Case. The following penalties have up to this hour been announced on the other cars for to-day's run; No. 33, Cole, 87 points; No. 41, Winton, 21 points; No. 43, Ford, 125 points; No. 4, White, 4 points; No. 47, Cadillac, 23 points; No. 51, Cadillac, 13 points; No. 52, Packard, 14 points; No. 56, Marathon, 72 points; No. 58, Marathon, 9 points; No. 59, Cadillac, 5 points; No. 60, Oldsmobile, 4 points; No. 61, Flanders, 7 points; No. 64, Pierce-Arrow, 3 points; No. 66, Stevens-Duryea, 10 points, and No. 69, Oldsmobile Autocrat, 1 point. The majority of these penalties, it is understood, have been imposed for lateness due to the wretched condition of the roads.

Perfect Scores Slaughtered

ROANOKE, VA., Oct. 17—Special telegram. To-day was the real Waterloo of the 1911 Glidden tour, at least so far as it has progressed. The tour to-day staggered, tottered for a moment and went on, but it was a spattered remnant of the proud array of automobiles that left New York last Saturday that limped into night control at Roanoke. A cloudburst, such as has not been seen in this section for 20 years, overwhelmed the tour this afternoon and plucked clean scores by the dozens. The scene of the convulsion of nature was in the north end of



Major Cohen of Atlanta in his White car



R. M. Owen in the Reo Pathfinder on tour

Roanoke Valley, just south of Natural Bridge. For an hour the rain fell solidly and when it ceased to the volume of a mere downpour roads were under water. As a result there will probably be no run to-morrow because creeks are running bank full and fords are impossible if deep enough to flood the magnetos.

Along the way from Natural Bridge contesting cars are lying to-night in the blinding rain abandoned by their crews or are limping towards Roanoke. Nine cars failed to report at night control up to its closing time and fifteen cars were penalized for lateness. President Hooper's Garford non-contestant is in the ditch 17 miles from this city; and accidents were so frequent that they are not being considered individually. Fortunately nobody received serious injuries. There would have been but few clean scores left to-night had it not been for an allowance of 26 minutes made to the running time of each contestant by Referee Walker. The grounds for the allowance rest upon the blockading of the road by two automobile fire engines proceeding toward Roanoke. These engines became mired and held back the procession materially.

The route to-day was from Staunton through the Shenandoah valley to Lexington, with a detour to Lee and Jackson's tombs and the Virginia military institute. Noon control was at Natural Bridge.

The going was poor most of the way into noon control and from Natural Bridge to a point 10 miles from Roanoke they were beyond description under the circumstances. Red clay is the road bed and a pedestrian simply could not stand upon it. The road is narrow and once a car, with a fast schedule, got behind time it was almost worth human life to try to regain position.

Penalizations imposed upon the participants during the first four days of the tour are given in the following table:

Team	No.	Car.	Penalties by days.				Total
			1	2	3	4	
Tarrytown	1	Maxwell	0	0	0	0	0
	2	Maxwell	0	0	0	0	0
	3	Maxwell	0	0	0	0	0
Atlanta 1	8	Flanders	0	0	0	0	0
	63	Flanders	0	0	0	0	0
	61	Flanders	0	0	0	7	7
Atlanta Journal	5	American	0	0	0	0	0
	6	Thomas	0	0	0	0	0
	7	White	0	0	0	0	0
Atlanta 2	11	Stevens-Duryea	0	0	0	0	0
	39	Stevens-Duryea	0	0	0	0	0
	66	Stevens-Duryea	0	0	0	10	10
Atlanta 3	43	Ford	0	0	0	125	125
	44	Ford	0	0	0	0	0
	45	Ford	0	0	0	0	0
Atlanta 4	10	Pierce-Arrow	0	0	0	0	0
	12	Marmon	0	0	0	0	0
	64	Pierce-Arrow	0	0	0	3	3
Atlanta 5	4	Maxwell	0	0	0	0	0
	49	Columbia	0	0	0	0	0
	50	Maxwell	0	0	0	0	0
Atlanta 6	18	Garford	0	0	0	0	0
	19	Mitchell	0	0	0	0	0
	20	Schacht	0	0	0	0	0
Atlanta 7	21	Corbin	0	0	0	0	0
	14	White	0	0	0	0	0
	22	Thomas	0	0	0	0	0
Nashville	56	Marathon	0	0	0	72	72
	57	Marathon	0	0	0	0	0
	58	Marathon	0	0	0	9	9
Waltham	15	Metz	0	0	0	0	0
	16	Metz	0	0	0	0	0
	17	Metz	0	0	0	0	0
Albany, Ga.	34	Halladay	0	63	0	0	63
	35	Halladay	0	0	0	0	0
	36	Halladay	0	31	0	0	31
Detroit, Mich.	53	Flanders	0	*591	0	0	591
	54	Flanders	0	0	0	0	0
	55	Flanders	0	0	0	0	0
Cordele, Ga.	60	Oldsmobile	0	0	0	4	4
	65	Oldsmobile	0	0	0	0	0
	69	Oldsmobile	0	0	0	1	1
Florida	28	Cadillac	0	4	0	0	4
	29	Cadillac	0	15	0	0	15
	37	Cadillac	0	0	0	0	0



Atlanta men in Corbin on the Glidden tour

	No.	Car.	Penalties by days.				Total
			1	2	3	4	
Live Oak, Fla.	31	Cadillac	0	0	0	0	0
	51	Cadillac	0	0	0	13	13
	74	Cadillac	0	3	0	0	3
Everglades	33	Cole	0	0	0	87	87
	46	White	0	0	0	4	4
	48	Cadillac	0	0	0	0	0
Jacksonville	32	Cadillac	0	0	0	0	0
	40	Cadillac	0	0	0	0	0
	47	Cadillac	0	0	0	23	23
Unteamed Cars	26	Mitchell	0	0	0	0	0
	27	Chalmers	0	13	0	0	13
	41	Winton	0	0	0	21	21
	42	E. M. F.	0	53	0	0	53
	52	Packard	0	0	0	14	14
	59	Cadillac	0	0	0	0	0
	70	Krit	0	0	0	0	0
	71	Case	0	0	0	0	0
	73	Mitchell	0	0	0	0	0
	72	Haynes	0	0	0	0	0

*Not reported at night control.

The First Day's Run

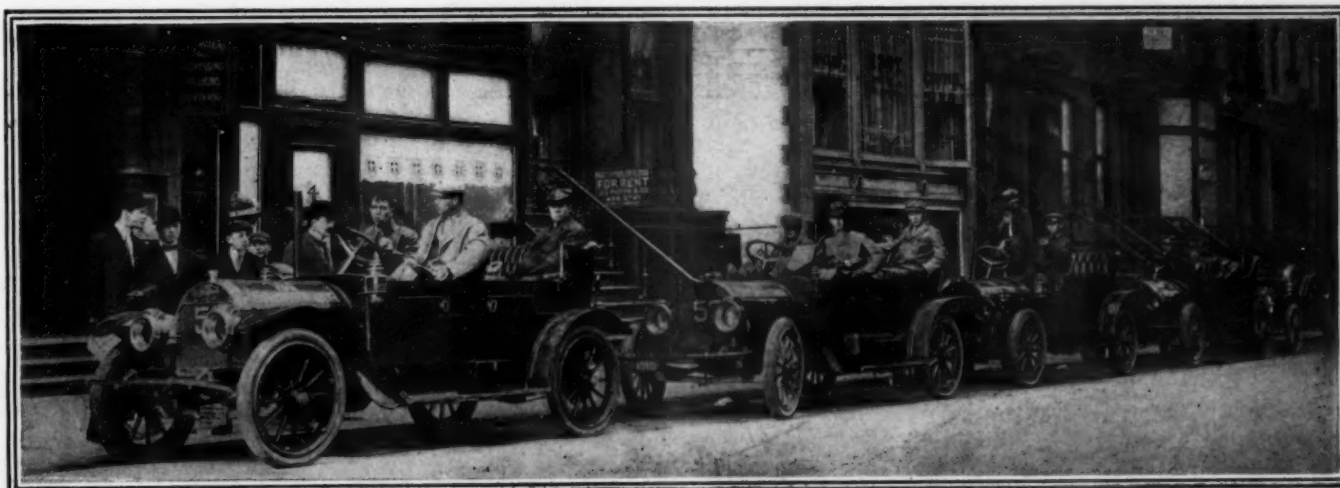
PHILADELPHIA, PA., Oct. 14—The first day's running of the Glidden tour failed to produce any penalizations, all contestants checking into noon and night controls within their schedules.

With sixty-four contesting cars in line, the Glidden tour of 1911 started from New York this morning on its way to Jacksonville, Fla. The day was fair overhead, but the recent dry weather gave promise of much dust.

There were automobiles in the column that have been strangers to Glidden tours for several years, among them being Pierce-Arrow, Packard, Thomas, Stevens, Winton and others. On the other hand there were many cars of moderate price in the caravan and some of the smallest automobiles made in the United States. It was a typical exhibition of American cars that lined up in West Thirty-ninth street, facing Fifth avenue in New York at the start.



One of the Flanders cars in the Glidden



The team of three Marathon cars from Nashville, Tenn., waiting for start of the tour

Glidden Tour Road Scenes



These are typical views of the roads through Pennsylvania and New Jersey on the first day's run of the Glidden Tour. The New Jersey roads are proverbial for their excellent condition. The two lower illustrations are Pennsylvania scenes, the middle one being near Gettysburg and the bottom one in the vicinity of Lanhorn. The State of Pennsylvania has built miles of good stone road within the last 5 years, but the great problem has been that of keeping the surface in a good state of repair. It is one thing to build a good road and it is another problem to keep the road in a proper condition. To-day the maintenance problem is the big one in the road building field.

Behind the wheels of the cars were millionaires, business and professional men, representing the most progressive element of the New South, factory drivers of tried ability and a few chauffeurs. Riding as passengers were at least a dozen men whose names have a significance that is nation-wide.

Governor Hoke Smith of Georgia entertained Governor Woodrow Wilson of New Jersey as far as noon-control at Trenton and it is said that the Governor of Georgia remarked to the Governor of New Jersey on one occasion when it seemed as if there might be some lateness at noon-control: "Let's beat it."

There were big welcoming delegations at Newark, New Brunswick and Trenton. The column reached Philadelphia in perfect order and with no perceptible straggling.

Besides the contesting cars there were thirteen officials, non-contesting and press cars attached to the caravan. All told there were about 275 persons riding in the cars.

At Philadelphia the associated automobile clubs tendered the tourists a smoker and entertainment at the Hotel Walton which was liberally attended. The day's route was 101.1 miles, all of which was over excellent roads.

This is primarily a good roads tour. There are no technical penalties to be imposed, reliability in reaching controls on time being the single requisite for a clean score. The total mileage to Jacksonville is 1460.6 and the daily routes are not particularly strenuous.

The main trophy presented by Charles J. Glidden and which bears his name will be awarded to the three-car team that finishes the run with the least number of demerits. The Anderson S. C. trophy will go to the car having the best score and in addition cash prizes of \$199 will be given to the runabouts and touring cars in each of the seven divisions of Class A under the rules of the A. A. A. In case of ties for either trophy the winners will be selected by drawing for numbers or flipping a penny.

Philadelphia to Gettysburg

GETTYSBURG, PA., Oct. 15—To-day's penalties are: Chalmers No. 27, 13 points; Cadillacs Nos. 28 and 29, 4 and 15 points respectively; Halladays Nos. 34 and 36, 63 and 31 points respectively. Besides these Flanders 53 broke an axle and was not in at midnight.

Three teams lost their chances for a clean score as a result of to-day's run in the Glidden tour. One unattached car, Chalmers 27, was also penalized for lateness into night control. The sufferers were: Cadillac 28, which loafed along this morning and then had tire trouble while trying to make up time; Cadillac 29, which went astray from the confettied course and experienced tire trouble while racing to control; Halladay 34, which skidded into a curb while in control at Lancaster and bent its right front spindle and axle and smashed its running board; Halladay 36, which took its points for standing by its disabled teammate, and Flanders 53, which suffered a broken axle near Gettysburg and is still out at midnight.

Sunday dawned with leaden skies and at checking out time the rain commenced to fall dismally. All day it continued intermittently and despite the good roads traversed before reaching Lancaster, Pa., several of the cars were in trouble at noon control. The route was only 120.1 miles and was all good except about 8 miles into night control. These 8 miles, however, are notoriously the worst in Pennsylvania and they racked and strained the cars so that many of them will show the effects between this time and final control at Jacksonville.

A visit to the battlefield at Gettysburg was the feature of entertainment offered the tourists this afternoon and many of them took advantage of it. A canvass of the party disclosed the fact that almost without exception the tourists were represented in the great battle of 1863 by near relatives. As the party is composed largely of Southerners, the side that fought under the Stars and Bars received the more general scrutiny as to position on the battlefield. Governor Smith of Georgia enter-

tained Governor Tener of Pennsylvania over part of the course to-day.

Out of the contesting column, which consists of eighteen teams and ten unattached cars, all have clean scores except the Albany, Ga., team, Florida State team, Detroit team and the Chalmers car as stated. The Maxwell, Marathon and Metz teams are being very carefully driven and have not suffered so far. The big cars have performed splendidly so far, Thomas, Packard and Pierce-Arrows going along without a skip and the Stevens team doing brilliant work. One noteworthy feature of the run has been the freedom from engine trouble, practically none of it having been encountered by the participants of the Glidden Tour up to this time.

Entering Dixie Land

STAUNTON, VA., Oct. 16—The only penalty to-day was E-M-F No. 42, which has not reported yet. To the inspiring strains of "Dixie," the Tour rolled into Staunton this afternoon after the longest run of the tour and what will certainly be one of the pleasantest. The dust and rain and fog disappeared at the entrance to the smiling Southland and the Virginia roads fulfilled all the pleasant promises that had been made for them.

Three of the greatest battlefields of the Civil War were traversed to-day when the cars passed over a part of the Gettysburg field, where the pivotal contest of the war was fought; Antietam, where the blue and gray battled to a desperate draw and the great Shenandoah Valley, where Early, Stewart, Sheridan and Warren battled to and fro and devastated it for three fierce years.

To-day there is no sign of that struggle in the peace and prosperity that enwraps the valley save that here and there the beloved Stars and Bars are displayed in honor of the tourists alongside the Stars and Stripes.

Winchester, seated at the gateway, is one of the best automobile towns of its size in the country. There are over 300 small cars of one make owned in Winchester and through a radius of ten miles. The city has five lively and prosperous agencies which handle a typical line of automobiles. Winchester is immortalized in heroic verse of Buchanan, describing Sheridan's wild ride to rally his disordered troops and gain a fundamental victory from what looked like disaster.

One of the features of the reception at Staunton was the parade of the cadet corps of the Virginia Military Institute. This battalion stood at Present Arms during the passage of the contest in cars.

There was only one penalization as the result of to-day's run. E-M-F 42 ran into a chuckhole near Charleston, W. Va., and wrecked two wheels. The car had not reported at 9 o'clock to-night and will receive a large number of demerits. It is being repaired as rapidly as possible.

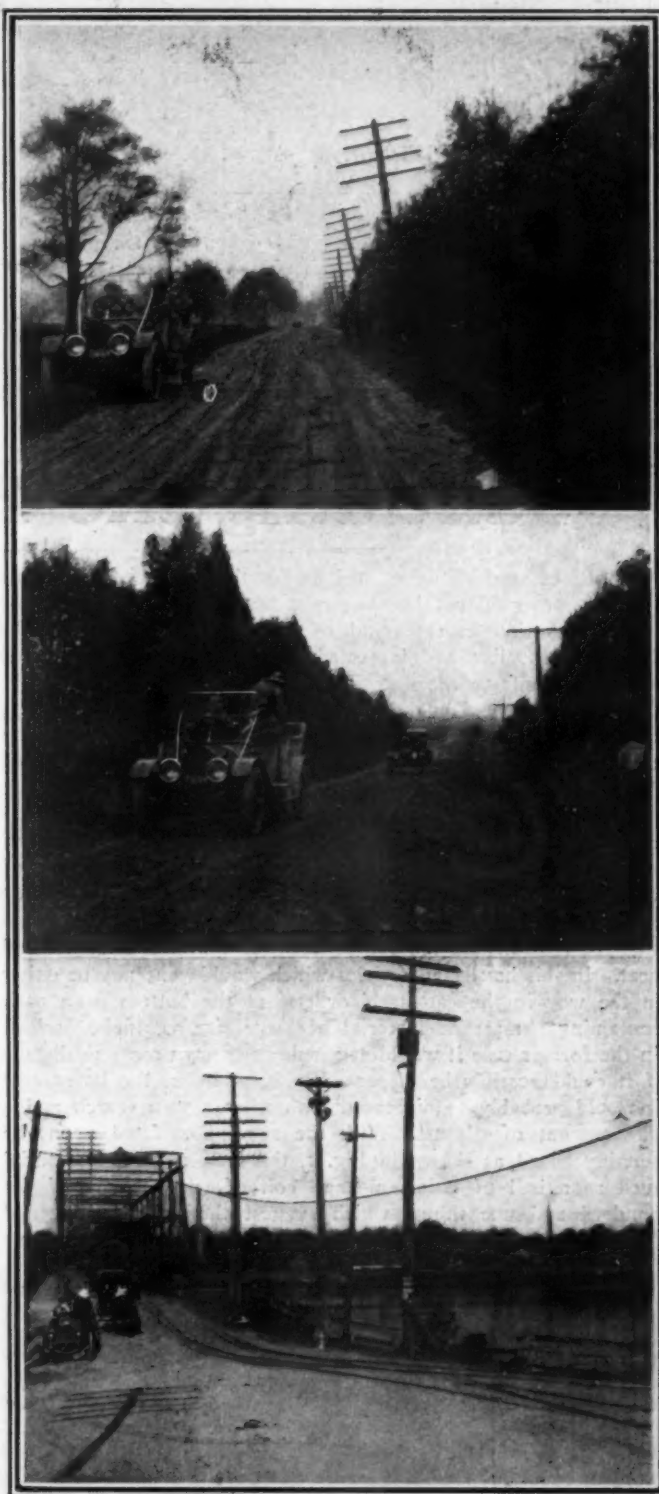
There was one accident during the run. The Pierce-Arrow press car carrying the starter and his assistant and driven by O. A. Britson of Brookings, S. D., rammed a telegraph pole while going at a high rate of speed and turned turtle. Nobody was hurt but the car was badly damaged. The fault lay in the fact that too much speed was being used.

There were two additional penalizations for yesterday's run that were not included in yesterday's scores. These were Cadillac 74, which was given 3 points for being late after losing its way, and E-M-F 42, which was demerited 53 points after suffering a road accident in the heavy going east of Gettysburg. Flanders 53, which broke an axle on the second day, reached control at Gettysburg at 3 o'clock this morning, joined the column and made a perfect score to-day. Its penalty for lateness was 591 points.

There were no penalties posted to-night as the result of to-day's run.

Governor Smith entertained Governor Glasscock of West Virginia for part of the day's run and is booked to ride with the governors of all the States traversed by the tour.

Glidden Tour Road Scenes



These illustrations show typical road scenes on the route of the Glidden tour through the State of Pennsylvania. Both of the upper illustrations are photographic reproductions of roads in the vicinity of the famous Gettysburg battlefield, which point was reached on Sunday evening after travelling all day in a steady rain. The bottom illustration shows the bridge over the Delaware River on the boundary line between New Jersey and Pennsylvania; this point was passed on the first day of the tour. The roads on the first portions of the tour will be much better than those near the end of the tour in Southern Georgia and Florida.

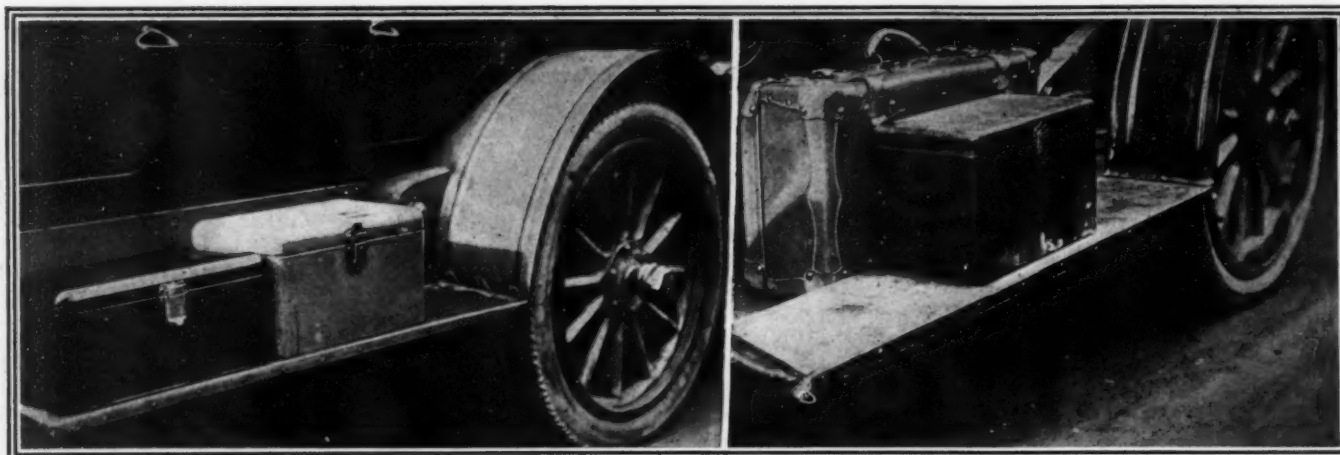


Fig. 1—Showing how a second neat box can be carried on the running board Fig. 2—A suit case can be placed between the running board and body

Subduing the Baggage Problem

THE cars which were lined up for the start of the Glidden tour could not but inspire a large amount of food for reflection in the mind of one who strolled along the length of the line and inspected the various methods adopted by the entrants to the tour in storing their baggage and spare parts. The inspection did not have to be more than casual to disclose the fact that while neatness was the predominant feature with a majority of the contestants, there were many whose baggage arrangements could have been markedly improved.

With very few exceptions, the running boards of the cars were called upon to play a significant part in the transportation of the dead weight. The arrangements were many and indicated wide variations in the ideas of security held by the owners of the different cars. In many cases an extra box was fitted alongside the toolbox and the appearance was very workmanlike and neat. In this box small articles which would generally be either in the way in the car itself or else at the bottom of a pack containing a mass of material of large size, could be packed. In the former case it would as a rule be thrown away in disgust if it could possibly be dispensed with, while in the latter case it would probably be dispensed with after a vain search and a like amount of disgust. With the small box fitted upon the running board as shown in Fig. 1, the little pieces of material such as a ball of twine, a small coil of wire or any of the hundred and one things which suggest themselves as needed upon a tour of any length, may be comfortably stowed away



Fig. 3—Neat brackets with straps for carrying oil cans on running boards

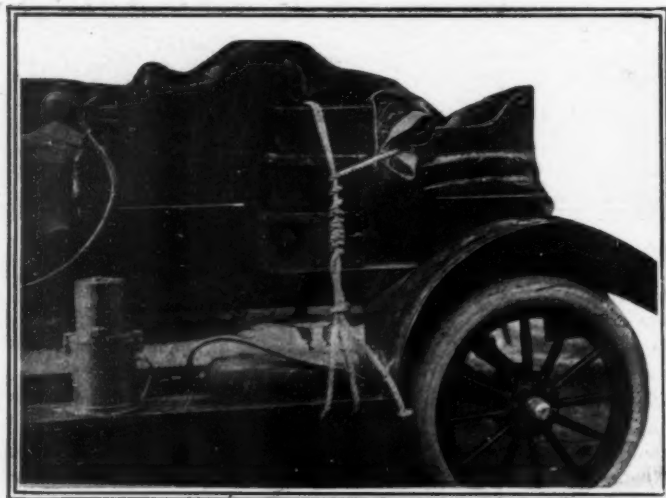


Fig. 4—This is not the neatest way of securing suitcases on a car during a tour. A strap would have been much better

where they will be at hand whenever they are required.

In place of the small box a suit case will often be fitted as shown in Fig. 2. If this be suitably fastened so that it will not acquire the disagreeable habit of jumping off the running board every time the car meets an inequality in the road, it will no doubt serve the purpose as well as the small box mentioned above.

The running board can be utilized in other ways as is shown in Figs. 3 and 4. In the latter of these two illustrations the rear of the car is depicted laden with suit cases which seem to be fully capable as far as size and quantity are concerned to carry the needs of the two passengers for which the car is adopted upon a tour of remarkable length. A watertight cover can be seen stowed just to the rear of the suit cases. This is for use no doubt in case a rain storm should spring up. Since a storm is not governed by any laws of appearing gradually it is assumed that the cover may be taken out in a hurry; from the manner of roping down the suit cases and cover with one rope it would seem to indicate that after the storm cover were detached it would be necessary to rebind the cases. This is not convenient. A neat method of carrying oil cans is disclosed by

a glance at Fig. 3. Bronze brackets are fitted which support the cans and pass beneath the running board; straps are then attached to the brackets and the whole outfit is firmly held and yet can be taken down for use in a remarkably short space of time. The tool box is fitted next to the oil cans so that the whole available space on the running board is made use of and yet it does not give a littered appearance.

The arrangements in the tonneau of the cars on a tour where passengers are carried are of great importance. This will no doubt be food for reminiscence for those who have ever had the questionable pleasure of traveling in a car for any length of time, when the tonneau was so crowded with excess baggage that the only apparent place to put their feet was somewhere in the neighborhood of the top of the front seat. It is a fact that the more one travels the less one carries. Every trip of any length will disclose the fact that some formerly treasured



Fig. 6—Suit cases can be wrapped in waterproof cloth and carried back of the gasoline tank



Fig. 5—The good appearance of any car is spoiled by cluttering it all up with baggage, at each side and in rear

piece of baggage could be dispensed with and its loss never felt. Yet it is none the less a fact that what many persons regard in the light of effete luxuries are to others indispensable necessities, yet even when carrying these few pieces of perhaps unnecessary luxuries, it is generally the case that they can be stored with a little care so that they will never be the cause of the slightest annoyance to the driver or his passengers. On the other hand a glance at Fig. 8 will show a case where the storage of loose articles about the floor of the tonneau will probably lead to great discomfort to the passengers on the first bit of rough road encountered, and yet it is probably a fact that every piece of loose material is of necessity. One can however well imagine the lively tattoo that the jack will beat upon the sides of the oilcans as soon as the roads deviate from the smoothness of the populated districts.

In a tour of the nature of the Glidden, space and trouble may be saved to a number of drivers and other occupants of the cars by having a non-contestant car accompany them for the sole purpose of carrying their extra baggage. The tonneau of this car can be heaped to the gunwales with suit cases and boxes and yet the chances of losing any of them are comparatively slight. There are no passengers to be carried in the car in this

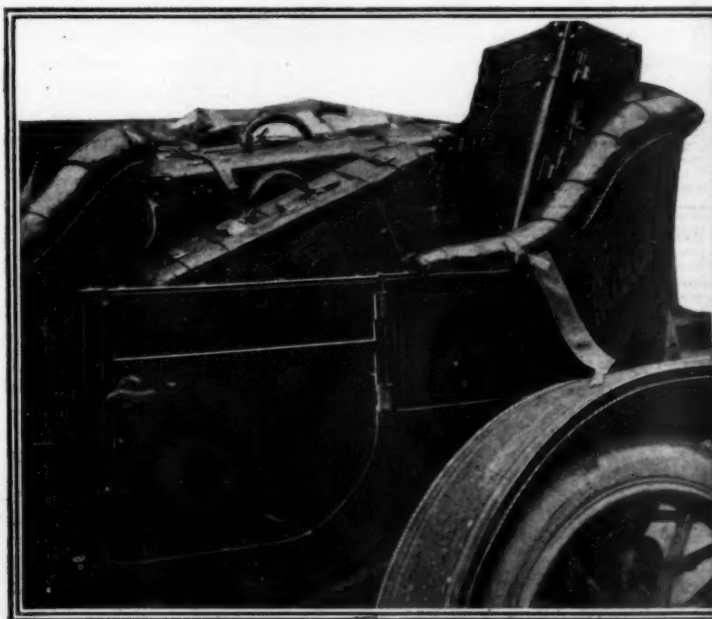


Fig. 7—This car was used solely to carry baggage for the tourists on the Glidden. There were some that carried baggage and passengers in the tonneau



Fig. 8—This is the tonneau of one car that started on the Glidden tour. Baggage, gasoline, oil and tools were all mixed together



Fig. 9—A carful of ladies ready to start on the Glidden Tour. Note the poor position of the valise on the side compared to the valise on the rear

case and therefore there will be plenty of room as may be seen in Fig. 7, where the non-contestant car in the Glidden Tour is illustrated.

There is nothing, perhaps, which will tax the ingenuity of the tourist so much as the arrangement of the spare tire cases, and

in this matter it is as a rule better that some standard contrivance which has been made for the purpose, be used. It is needless to say that the tire should be well covered, for anyone knows that it is anything but a delectable occupation to scoop the accumulated mud and dirt from the interior of the shoe before fitting it to the rim. In most cases the tires are covered and there are few uncovered cases among a line of cars starting upon a lengthy tour; it was the case, however, in the Glidden that many pinned their faith to brown wrapping paper of rather uncertain thickness which may or may not be a wise proceeding, according as to how thoroughly the casing was bound up in the paper and how well the fastenings were made. A convenient method of carrying spare tires is illustrated in Fig. 5, where the tires are shown upon the running board helping to support two parcels. The coil of rope which should always accompany a car when on a tour of any length is bound to the spare shoes in such a manner that it may be readily detached in case of need.

The rear of the car forms the most natural point to suspend the baggage. A neat arrangement of cases will permit of a considerable amount of weight being carried in a manner that it will not take up an excess of space. A reference to Fig. 5 may be made for the purpose of pointing out the small valise stowed upon one side. A valise makes a very fine bag to carry in the hand, but its shape does not aid it in its amenability to storage. The suitcase, on the other hand, on account of its shape may be fitted nearly anywhere. It is evident to the observer that the valise in the illustration would be in grave danger of falling out upon the slightest provocation. An arrangement of suitcases in the rear of the car is shown in Fig. 12. There are three here piled one upon the other and when strapped as shown, are as safe as could be desired from any road shocks or other ordinary vicissitudes of automobile travel. Another case of three suitcases being piled upon each other may be seen in Fig. 10 where the running board is utilized for the purpose. There is plenty of baggage room here for three people and yet room for the spare tires is also found upon the same running board.

Next to the suitcase or the trunk, in order of amenability to storage comes the flat package. Examples of the manner of storing these packages may be seen in Figs. 6 and 15; these take the place of a trunk and are capable of carrying more than a single suitcase. They have the disadvantage, however, that the whole outfit has to be unpacked for the purpose of removing any one article no matter how small it may be. These tarpaulin packages have the same feature as the suitcases, however, inasmuch as they are capable of being stored nearly anywhere the driver may wish to put them. Only the larger cars



Fig. 10—Suit cases lend themselves to storage because they are flat



Fig. 11—Plenty of room for the passengers in this tonneau

are fitted with trunks as a rule, but a trunk rack is a handy adjunct to any car and where the owner has merely to let down the rack and place the trunk upon it he will be saved a large amount of trouble. An example of a trunk fitted to a touring car is shown in Fig. 12.

It is an impossibility for a car to make a successful tour without possessing the quality of being shipshape. Where all the luggage is permitted to float around the floor of the car loosely it is bound to cause trouble sooner or later. Everything should have a place and should be kept in it regardless of the fact that it may be of such a nature that it will be occasionally required by the occupants of the car. If it is of this nature, an arrangement such as a bracket may be made which will permit of easy removal and replacement.

Loose small articles should be studiously avoided. A heavy jack should never be placed loosely upon the floor where oilcans are resting, perhaps without being tied, as is seen in Fig. 8. Dirt should be avoided just as carefully, as it can cause damage at times. A case in point is the radiator which may be choked with the mud thrown from the wheels. To prevent this occurrence aprons should always be fitted where the going is rough and muddy. The aprons are shown in Fig. 13 and illustrate the attention which when accompanied by foresight, will greatly eliminate worry on the tour. If all these points are noted the passengers in the tonneau will not, when on a rough road, have to futilely chase the tire pump while the jack is gaily ramming a hole through the expensive thermos bottle.

There are certain rules concerning the storage of baggage which should be followed whether the car is a contestant in a tour or is merely starting for a day's run over some nearby roads. They may be summed up in brief: The smallest piece of baggage should be as accessible as the largest, i.e., if it is desired to jack the car up and remove a tire it should not be necessary to request the ladies who are occupying the seat in the tonneau to step out into the soft mud which generally surrounds the car when tire troubles put in their appearance. Another point which might well be made is to have the baggage so arranged that it will not be necessary to hunt vainly about the several packages before the one containing the article sought for is located. Last, but not least, the baggage should never, under any circumstances short of complete demolition of the car, be allowed to shift with the inequalities of the road. No one would think much of the captain of a ship who allowed himself voluntarily to be caught with a shifting cargo in his vessel's hold.

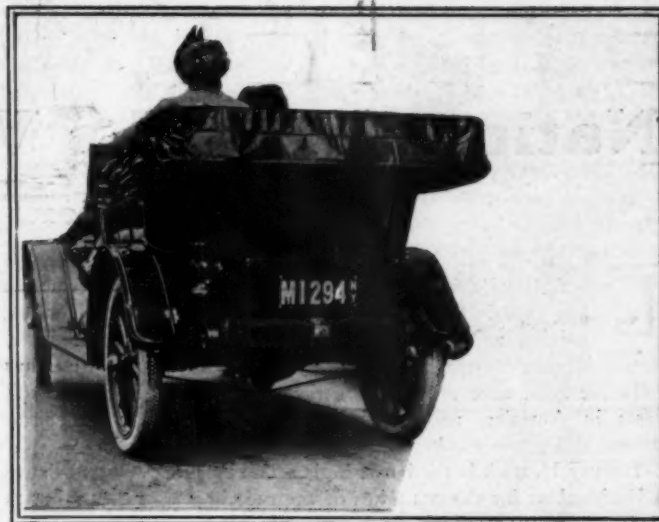


Fig. 12—There is nothing better than a neat trunk rack for carrying baggage



Fig. 13—Mud guards of this nature keep the radiator clean on long tours

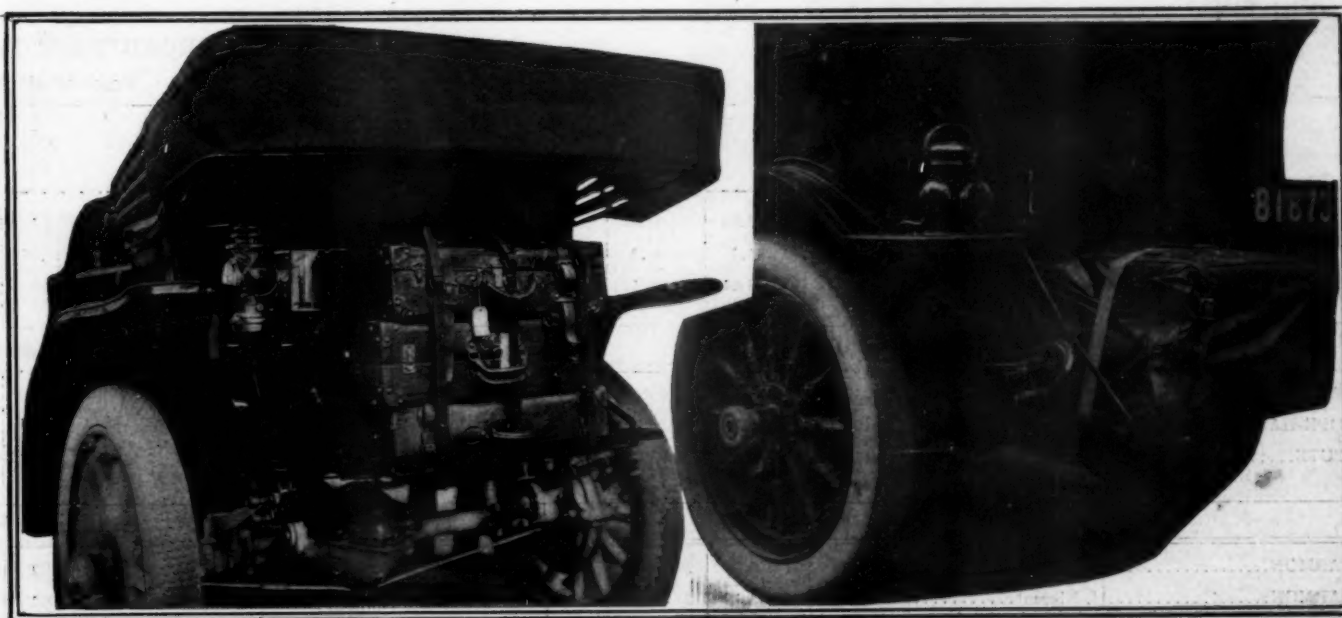


Fig. 14—Three trunks can be carried quite easily on a trunk rack on the rear of a car. They should be wrapped in a waterproof covering

Fig. 15—If suit cases have to be carried on the back of a car, it is best to wrap them up to protect them from the rain and dust during tour

National Breaks World's Road Mark

Herrick and Merz Shatter Florio Mark

LOS ANGELES, CAL., Oct. 14—Special Telegram—America has captured the road race record of the world. Herrick, driving a National, broke it to-day on the now famous Santa Monica course near this city. Nazzaro, in the Fiat, has held the road race record since the season of 1908, but now it rests in America, an American car, driven by an American driver, doing the work.

Harvey Herrick is the hero; he is a Los Angeles boy and drove a National 40 for the 202 miles of the race in 2 hours, 42 minutes and 24.6 seconds, which is an average speed of 74.62 miles per hour. The previous road record held by Nazzaro was a speed of 74.3 miles per hour made on the Florio cup course in the season of 1908. The new figure of Herrick was made on a shorter circuit than that on which Nazzaro gained his laurels. Many attempts have been made to wrest the road record of the world from Europe, special roads have been built in different parts of America for this work, turns have been banked and other precautions taken, but the honor has finally been taken by the West, and Harvey Herrick, the hero, has been driving in West Coast events for the past six months. This record was made in the free-for-all race, the tabulation of which is given on this and the following page.

But Herrick did not have it all his own way in the record-smashing program on the course to-day. Charles Merz, a National factory driver, also piloting a National 40, won the heavy car race over the same circuit, averaging 74.42 miles per hour. He also shattered the Nazzaro figures, but was a little behind the pace of Herrick. This heavy car race was for 151.5 miles.

There were two other races over the same circuit to-day and also two winners. Keen, driving a Marmon in the 231-300 cubic inch piston displacement class, won, driving the 151 miles in 132 minutes and 9 seconds, which is an average speed of 68.7 miles per hour.

The last and smallest race of the day was for cars with a piston displacement of under 231 cubic inches and for a distance

of 101 miles. Nikrent, driving a Buick, captured this event, doing the distance in 103 minutes and 21.70 seconds, which is an average of 59.20 miles per hour.

Herrick was the dark horse in the big race. He had to his credit the Bakersfield road race of last July and the Los Angeles to Phoenix desert race of last year. But he was not even a member of the National team which came out from the factory. In deference to the local agent, Herrick had been permitted to handle the car which was already here. When the coastman finished last with the same car in the 301-450 class event he became even more of a dark horse. His trouble in the heavy car event had been due to tires. He was making too much speed around corners. In the time between the class race and the free-for-all Herrick quietly mapped out his race and once under way he furnished the most consistent performance ever seen in an American road race.

The free-for-all for the Dick Ferris cup was a bitter fight between the Nationals and the Marmons. Bert Dingley in a Pope-Hartford was a contender up to the twenty-second lap when repeated tire changes put him out of the running. The fastest laps were reeled off by Tetzlaff, the winner of last year's race, in a Fiat. With 75 miles of the race completed the Fiat led by 4 minutes but from there on it began having engine trouble. Several times Tetzlaff stopped and made minor adjustments on his engine and once changed spark plugs at his pit. During the last half of the race he was not a contender.

At the start Tetzlaff and Wilcox in the National 50 set a hot pace. With three laps completed the Fiat led Wilcox by 56 seconds with Dingley third. The leaders had tire trouble in the fourth, but Tetzlaff retained his lead, while Patschke in a Marmon moved up to second and Dingley kept third. The Midland twisted its magneto shaft and stopped at its pit the first time around. Wilcox threw a tire on the Palisades turn, making a very spectacular skid, but bringing his car to a stop without trouble.

ANNUAL SANTA MONICA ROAD RACE IN CALIF

Free-for-all Race—202

CAR	DRIVER	Lap 1	2	3	4	5	6	7	8	9	10
NATIONAL.....	Herrick.....	7:02.07	13:42.04	20:26.39	27:09.05	33:52.55	40:34.55	47:17.15	53:55.5	60:34.1	.....
MARMON.....	Patschke.....	6:33.8	15:41.4	22:47.2	25:49.14	32:15.25	40:21.8	47:18.85	53:48.9	60:27.86	67:05.23
MARMON.....	Dawson.....	6:54.69	13:43.61	20:29.12	27:05.47	33:44.39	40:35.25	47:21	53:39.8	60:41.2	67:23.07
			6:49	6:46	6:36	6:39	6:51	6:46	6:18	7:02	6:42

Heavy Car Race—Distance 151.5 miles—

NATIONAL.....	Merz.....	7:03.52	13:46.55	20:29.60	27:10.45	33:51.45	40:37.45	47:18.55	53:59.35	61:52	68:42.4
POPE-HARTFORD.....	Dingley.....	6:49.62	13:24.31	19:59.80	26:37.95	33:11.9	39:51.25	46:38.8	53:19.45	61:54.7	68:36.85
STUTZ.....	Lewis.....	7:17.92	16:14.7	21:05.25	27:57.10	34:48.3	41:41.85	48:34.85	55:25.3	62:12.7	69:02.1
			8:57	4:51	6:52	6:51	6:53	6:53	6:51	6:47	6:50

Medium Car Race—Distance 151.5 miles

MARMON.....	Keen.....	7:43.65	14:56.90	22:06.10	29:18.40	36:31.10	43:56	51:08.6	58:51.95	65:48.9	73:19.85
MARMON.....	J. Nikrent.....	7:45.60	15:03.35	22:20.05	29:35.30	36:54.80	44:13.25	51:31.8	59:40.25	67:02.2	74:18.60
MERCER.....	Hanshue.....	7:45	15:10.55	22:12.20	30:11.40	37:40.85	45:10.20	52:38.05	60:05.50	67:27.10	74:52.6
			7:25	7:02	7:59	7:29	7:30	7:28	7:27	7:22	7:25

The only accident of the race occurred on the Interstate's fourth lap. Harry Endicott was approaching the turn when Tetzlaff overtook him and as they went into death curve together the exhaust from the Fiat blinded Endicott and he failed to make the turn, his car hitting the heavy iron rails which had been placed to prevent the cars crashing through a high board fence. The car was partially wrecked but with the exception of a few bruises and a sprained arm Endicott was not injured.

The first 50 miles was covered by Tetzlaff in 37:52. The Fiat had been reeling off laps at an 80-mile-an-hour average. The remainder of the cars were bunched, Patschke being 11 seconds ahead of Dingley, and Herrick 2 seconds behind the Pope-Hartford, and 1 second ahead of Merz. At the end of the ninth lap it was Tetzlaff. He led Patschke by 3 minutes 59 seconds. Herrick was 7 seconds behind and running strong. Tetzlaff came to grief on the tenth lap. He tried to take the Nevada turn too fast and blew two tires. This lost him the lead, Patschke taking first, followed by Herrick only 11 seconds behind. Even this far the ultimate winner was being given little consideration. This condition continued through the next lap, Dawson moving up to third. Wilcox had been gradually losing out on account of tire trouble. He changed two tires in the eighth lap and also stopped in the thirteenth, fifteenth and twenty-first.

It was Patschke, Herrick and Dawson in the thirteenth and in the fourteenth Herrick gained 3 seconds on the leader. A tire change threw Herrick back into fourth place in the fifteenth, Dawson going to second and Dingley to third. Tetzlaff was 14 minutes behind, completely out of it. Dingley crept up to second in the sixteenth and was still holding that position the next time around. Two bad laps sent Dawson back to fourth, Herrick coming to third.

With four laps yet to go, Patschke was leading Dingley by 1:05. Herrick had been making up his lost seconds and was only 7 seconds behind Dingley. At this stage it was anybody's race. One more lap and Herrick had taken second place from the Pope-Hartford, but the Marmon still led. The Marmon went by the stand missing and from there on Herrick went after the race, making his fastest laps toward the end. The twenty-third lap put Dingley out of it and from there on it was easily Herrick. With only 16 miles to go the result was still in doubt and the winning by the Los Angeles boy was the cause of the wildest enthusiasm.

Patschke and Dawson rolled into second and third places when Dingley fell by the wayside. Merz in the second National 40 had been coming fast and finished fourth.

The heavy-car race, for the Leon Shettler cup, was a battle royal between the Pope-Hartford, Stutz and two Nationals. Dingley was away in front and he continued to hold the advantage until the eighth lap. Tire trouble stopped Herrick in the fourth and fifth laps and Dingley made a change in the eighth. The tenth lap once more saw Dingley leading with Merz 6 seconds behind and Lewis in the Stutz and Herrick less than a minute in the rear. The eleventh brought more grief to Herrick in the shape of bad tires, while Merz continued to trail Dingley by 5 seconds. Merz gained a second on the next round and on the fourteenth, when Dingley was twice forced to stop for tires, the National went to the front and was never headed. At the finish only 2:56 separated the first and fourth cars.

The medium-car class was a hot fight between the Marmons, Mercer and Buick. At the finish of the fifth lap Keen in a Marmon led Nikrent, also in a Marmon, by 23 seconds. With ten completed Keen led by 59 seconds with Hanshue in the Mercer 34 seconds behind. Nikrent with only 3 laps to go was 48 seconds behind the leader. Keen won by 53 1-2 seconds over Nikrent and 1 1-2 minutes ahead of Hanshue. Nine started. This race was run at the same time as the heavy-car event.

Nine started in the light-car race, for the Chanslor and Lyon trophy, at 101 miles, which was sandwiched in before the free-for-all. The Maxwell lost its flywheel in the third lap and the Regal had engine trouble. Hanshue, in the Reo, set a fast pace but by consistent running Nikrent took the Buick to the front in the latter part of the race. The E-M-F looked all over the winner as late as the ninth lap, but a broken water connection caused a stop for repairs and more water and this lost the race for the Detroit car. The Ford was second to the Buick.

The day was ideal for racing, the warmth of the California sun combining with the breezes of the Pacific to make a balmy Spring day in October. Racing started at 8:30 and there was only a short intermission between events.

The crowd was immense, being estimated all the way from 75,000 to 100,000. It formed a solid mass of people around the entire 8.4-mile circuit, and every available seat was occupied. With the exception of the slight accident to Endicott, not a person was injured. The course was well guarded and the people gave the cars all the track. Several of the drivers provided thrills at the turns, a number going straight ahead at Nevada. This turn was banked last year. This year it was left flat and despite the fact that it was a right-angle curve all cars but one took it without accident.

(Continued on page 686)

ORNIA—TIME BY LAPS—OCTOBER 14, 1911

miles—No limitations

11	12	13	14	15	16	17	18	19	20	21	22	23	24	Miles per Hour
73:58.78	80:39.17	87:19.75	93:59.05	102:28.6	109:16.5	115:54.35	122:30.25	129:04.89	135:42.17	142:15.71	148:58.45	155:44.37	162:27.6	74.62
13:24	6:41	6:40	6:40	8:29	6:48	6:38	6:36	6:34	6:38	6:33	6:43	6:46	6:43	
73:46.2	80:26.45	87:04.85	93:47	100:27.67	107:14.1	113:58.39	120:46.96	127:35.69	134:30.57	141:26.65	150:58.2	158:20.14	165:42.73	73.24
6:41	6:40	6:38	6:43	6:40	6:47	6:44	6:48	6:49	6:55	6:56	9:32	7:22	7:22	
74:00.4	80:42	87:27.05	94:10.2	100:50.57	110:09.8	120:04.1	126:39.6	133:20.75	140:05.51	148:09.07	154:46.06	161:21.72	167:54.53	72.16
6:37	6:42	6:55	6:43	6:40	9:19	9:55	6:35	6:41	6:45	7:04	5:37	6:35	6:33	

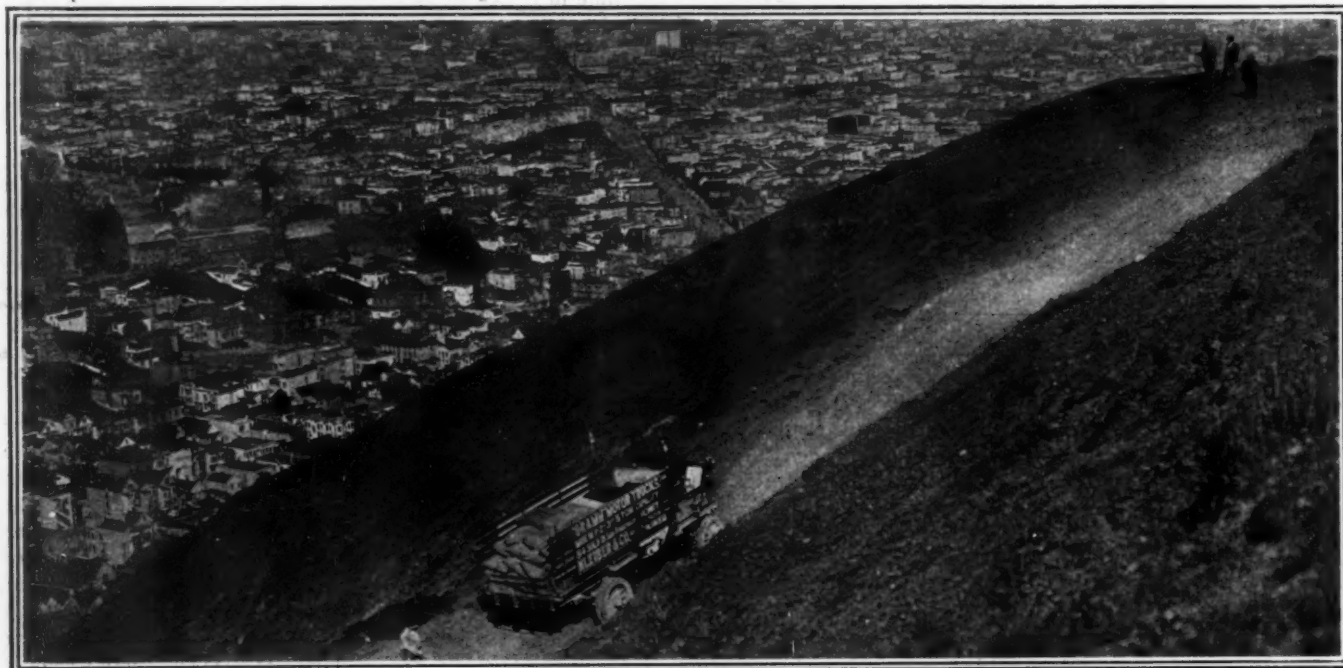
301-450 cubic inches—Non-Stock

75:24.10	82:02.40	88:46.34	95:24.23	102:02.75	108:33.75	115:28.65	122:08.45	.....	.....	.....	.....	.....	.....	74.42
6:42	6:38	6:44	6:38	6:38	6:31	6:53	6:29	.....	.....	.....	.....	.....	.....
75:20.25	82:01.05	88:42.85	96:27	103:52.15	110:26.25	116:57.1	123:26.3	.....	.....	.....	.....	.....	.....	73.64
6:44	6:41	6:41	7:45	7:25	6:34	6:31	6:29	.....	.....	.....	.....	.....	.....
75:48.75	82:57.75	89:48.7	96:43.85	103:43.15	111:00.25	118:00.10	124:56.95	.....	.....	.....	.....	.....	.....	72.18
6:46	7:09	6:51	6:55	7:00	7:17	7:00	6:56	.....	.....	.....	.....	.....	.....

—231-300 cubic inches—Non-Stock

80:35.65	87:50.50	95:16.10	102:41.40	110:08.70	117:24.45	124:45.53	132:09.95	.....	.....	.....	.....	.....	.....	68.7
7:16	7:15	7:26	7:25	7:27	7:16	7:21	7:24	.....	.....	.....	.....	.....	.....
81:47.35	89:03.75	96:21.25	103:38.85	110:56.55	118:22.2	125:44.85	133:03.5	.....	.....	.....	.....	.....	.....	68.32
7:29	7:16	7:18	7:17	7:18	7:26	7:22	7:19	.....	.....	.....	.....	.....	.....
82:15.60	89:39.05	97:03.85	103:23.55	111:44.	119:03.25	126:24.20	133:41.20	.....	.....	.....	.....	.....	.....	67.99
7:23	7:14	7:24	6:20	8:21	7:19	7:21	7:17	.....	.....	.....	.....	.....	.....

California Tests Commercial Cars



Grammm 6-ton truck, which finished with a perfect score, climbing Twin Peaks Hill



The Speedwell truck, which went through the run without a penalty

SAN FRANCISCO, CAL., Oct. 7.—California set the ball rolling in the commercial vehicle test held on October 4 and 5, when twenty-two trucks and delivery wagons contested over roads and city streets. When the 2-day test was over eleven still had their perfect scores remaining, a most creditable performance for a test of the kind. The winners in the six divisions were:

- Division 1K, up to 500 pounds—Brush delivery car.
- Division 3K, 1001 to 1500 pounds—Reo light delivery car.
- Division 4K, 1501 to 2000 pounds—Grabowsky truck.
- Division 5K, 2001 to 3000 pounds—White No. 4.
- Division 8K, 5001 to 7000 pounds—Kelly truck.
- Division 9K, 7001 to 10,000 pounds—White No. 19 and White No. 23 tied.

These awards were made on the basis of road and technical scores and the economy record according to the rules of the American Automobile Association. In addition to these winners

perfect scores were made by the Pierce-Arrow and Speedwell in the ninth division; the Packard and Grammm in the eighth division; the Autocar in the fifth division, the Buick and White No. 1 in the third division; and in division No. 1 by an Indian motorcycle delivery van.

The test was a 2-day affair, the first day being on the road and the second day about the streets and the hills of San Francisco. On Wednesday the twenty-two machines started from this city, crossed the bay by ferry, and made a run of 50 miles to San Jose. An hour was taken out here for luncheon and the cars then returned up the peninsula to San Francisco—the entire distance for the day being a little less than 100 miles.

Thirteen of the twenty-two cars came through this test, carrying their full capacity loads and some of them an over-load, with perfect scores.

The Franklin 1-ton truck lost its perfect score by dropping a pin out of the toggle joint. The missing pin was replaced with a twenty-penny nail and the car got along perfectly with this contrivance for the rest of the 2-days' test. In the fourth division the Grabowsky developed a leak in the gas tank. The Federal in the fifth division lost 25 minutes as the result of a broken steering arm. In the eighth division the 3-ton White No. 9 lost the water from its radiator. The motor heated and 15 minutes were lost in the search for more water. The Reliance burned a brake and had trouble with water in the carbureter. The Pope-Hartford broke its gasoline pipe line on its way to San Jose and lost 30 minutes. The Kelly dropped its pan. The Universal had motor trouble and was subsequently withdrawn. In the ninth division four of the five cars made perfect scores. The unlucky one was the Lewis, a home production, which broke a radiator spring.

At the top of the hill the cars were put through a clutch test. A platform had been built with an 8-inch curbing at one end. Each truck was compelled to place its front wheels against this and either climb it, spin its rear wheels or stall its engine. Every one of the cars succeeded in doing one of these things—proving

TABLE SHOWING ECONOMY RECORD IN TWO-DAY TEST
COST OF OPERATION

No.	Entrant.	Class.	Running Schedule— Miles Per Hour.	Gasoline at 14c. per Gallon.	Gasoline at 14c. per Gallon.	Lubricating Oil at 40c. Per Gallon.	Lubricating Oil at 40c. Per Gallon.	Drivers' Wages	Depreciation 12 Per Cent. Per Annum, 300 Days	Total Cost	Total Cost Per Mile	Price of Truck	Load Carried, Pounds	Total of Road and Final Technical Examination Penalties	Cost Per Ton Mile	Total Cost Per Ton Mile, Includ- ing Penalties at 1-10 Cent Per Penalty
				Gals.	Cost.	Pints.	Cost.	Cost.	Cost.							
1	WHITE.....	3-K	12	10½	\$1.81	5½	\$1.10	\$2.50	\$1.92	\$ 9.83	\$.0740	\$2400	1,500	...	\$.0987	\$.0987
3	FEDERAL.....	5-K	10	18½	2.74	3	1.60	2.50	1.80	10.14	.0762	2250	2,000	550	.0762	.0803
4	WHITE.....	5-K	10	11	1.59½	9	1.80	2.50	2.68	11.07	.0832	3350	3,000	...	.0554	.0554
6	FRANKLIN.....	4-K	12	16	2.32	3½	.66½	4.00	2.10	13.09	.0983	2620	2,000	2800	.0983	.1194
7	BRUSH.....	1-K	14	5½	.83½	3½	.75	2.00	.36	6.02	.0452	450	500	89	.1808	.1815
8	BUICK.....	3-K	12	12½	1.85	9	1.80	2.50	1.20	9.85	.0741	1150	1,500	...	.0988	.0988
9	WHITE.....	8-K	6	22	3.19	11½	2.30	3.50	3.24	15.73	.1183	4050	6,000	32	.0394	.0396
10	LEWIS.....	9-K	6	30½	4.47	6	1.20	3.50	3.08	15.75	.1208	3850	8,000	50	.0302	.0306
11	RELANCE.....	8-K	6	28½	4.13½	14	2.80	3.50	3.08	17.01	.1279	3850	7,000	522	.0365	.0405
13	GRAMM.....	8-K	6	28	4.06	16	3.20	3.50	3.11	17.37	.1306	3890	6,000	...	.0435	.0435
14	SPEEDWELL.....	9-K	6	18	2.61	7	1.40	3.50	2.91	13.92	.1071	3650	8,000	...	.0268	.0268
17	PIERCE-ARROW.....	9-K	6	24½	3.55½	4	.80	4.00	3.80	16.15	.1213	4750	10,000	...	.0243	.0243
18	POPE.....															
19	HARTFORD.....	8-K	6	38½	5.58½	11½	2.30	6.00	2.88	22.76	.1709	3600	6,000	90	.0570	.0577
19	WHITE.....	9-K	6	16½	2.43	10	2.00	3.50	3.60	15.03	.1154	4500	10,000	...	.0231	.0231
20	GRABOWSKY.....	4-K	12	16	2.32	11	2.20	3.50	4.28	15.80	.1188	5350	2,000	20	.1188	.1189
21	KELLEY.....	8-K	6	29	4.20½	10	2.00	3.25	2.80	15.51	.1163	3500	6,000	6	.0389	.0390
22	AUTOCAR.....	5-K	10	13	1.88½	6½	1.30	3.00	1.92	11.11	.0855	2400	3,000	...	.0557	.0557
23	WHITE.....	9-K	6	23½	3.40½	5	1.00	3.50	3.60	15.01	.1153	4500	10,000	...	.0231	.0231
24	REP.....	3-K	12	12	1.74	11	2.20	2.50	.70	9.64	.0725	875	1,500	83	.0967	.0973
25	UNIVERSAL.....	8-K	6	With drawn	...	...	...	...	...	...	...	...	...	...	...	...
26	INDIAN.....	1-K	14	3½	.49	1	.20	2.25	.36	5.55	.0417	450	250	...	.3336	.3336
28	PACKARD.....	8-K	6	21½	3.15	14	2.80	4.00	3.08	17.03	.1280	3850	6,000	...	.0427	.0427

the efficiency of their clutches. The cars were then put through a brake test on an asphalt street. The Grabowsky failed to stop within the 50-foot limit on its emergency brake, requiring 68 feet to stop. The Reo also failed on both service and emergency brakes and the Brush's emergency refused to work under 134 feet.

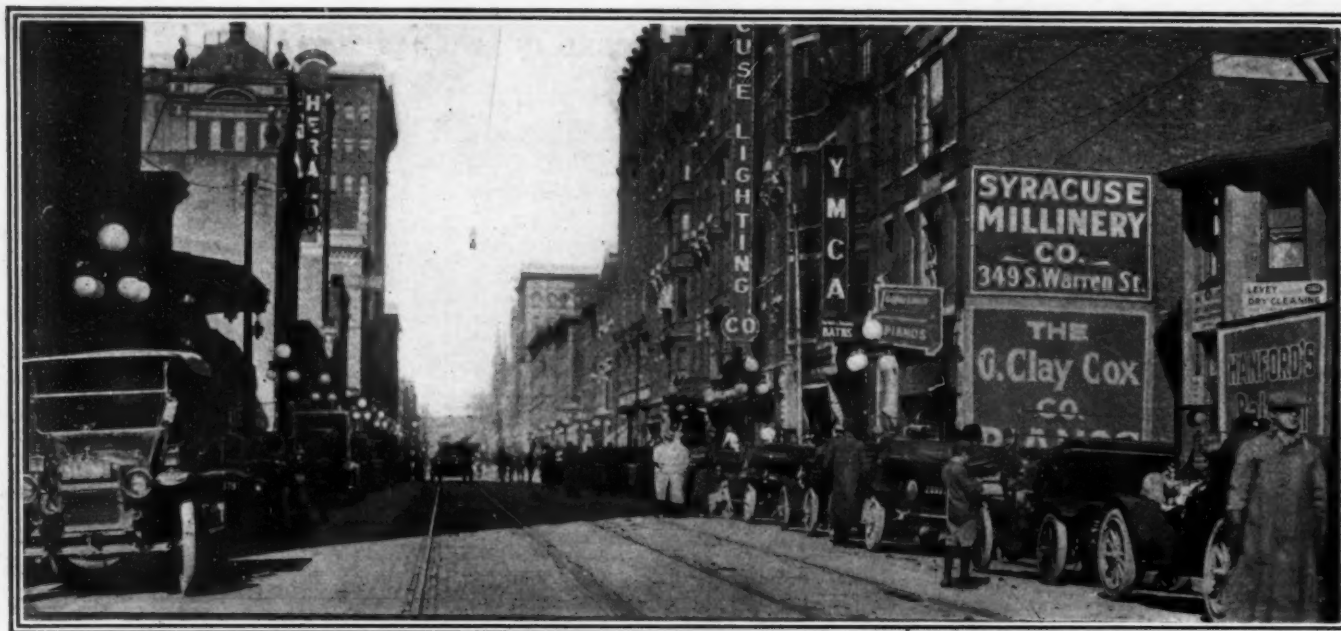
The purpose of the second day's events, which were held entirely in San Francisco, was to draw the attention of the San Francisco business men to the possibilities and capabilities of the motor truck. During the morning the trucks were driven over some of the worst roads in the business and residence parts of the city—the route being chosen with the view to giving the cars a test over the bad streets and hills and through some sand. Every one of them came through this part of the day's events with a perfect score—much to the delight of the truckmen. San Francisco is a hilly city and it has always been held against the motor truck that this was an obstacle to its wide use here. The



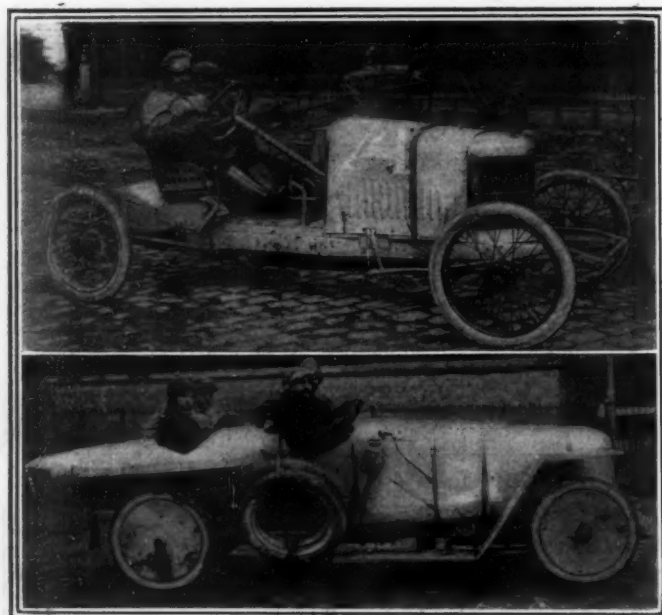
The five White trucks entered in the run made a good showing



Where the trucks checked in at one time during the two-day run



Start of the Syracuse Herald Sociability Run, in which fifty-five cars participated



Alcyon and Benz in Gaillon Hill-Climb

score made by the trucks on this day conclusively disproved the claim that they were not able to negotiate the hills.

In the afternoon the cars were given a supreme test in hill climbing. At the end of Market street, the main artery of the city's traffic, there is a mountain which goes by the title of Twin Peaks. There is a pretty good winding road all the way to the top and over this the cars were sent. It is a steady grade all the way without a let-up and in two or three places there are inclines that are unusually heavy. At the top of the worst of these grades the cars were compelled to make a turn so sharp that they almost doubled back upon their tracks. They did all that was asked of them, grinding steadily up the hill under their enormous loads, some of them moving along at a lively clip, others moving along more slowly but unfalteringly.

Hundreds of people had gathered along the route to witness the big machines as they made their way up and they saw every one of the cars carry without protest loads that could not have been taken up by horses except with great difficulty.

Gaillon Hill-Climb

PARIS, Oct. 5.—The French classic hill-climb, the Gaillon climb, took place on Sunday and seventy-five cars were entered. The event is over a kilometer course on the Sainte Barbe hill, and when the times are taken into consideration it must be remembered that a flying start is allowed.

The record for the hill made last year, of 23 seconds, which approximates 95 miles per hour, was not beaten and the fastest time was made by Gaste on a Rossel six-cylinder car in 32 4-5 seconds. Second in general classification was a Mors racer of 1908, which ascended the hill in 36 1-5 seconds. Third place was taken by an Alcyon driven by Barriaux, whose time was 39 1-5 seconds.

One of the cars which competed and climbed the hill in 40 4-5 seconds was a Laurin-Klement car made in Austria, with a four-cylinder motor, 3 3-5-inch bore and 10-inch stroke. It was the longest stroke car in the climb.

In addition to the speed classification the cars were subdivided into classes and awards were made for efficiency according to a formula which took the weight of the car loaded, the speed, the gradient, bore and stroke of the motor and the number of cylinders into consideration, a constant being also used, which varied according to the class of the car. Class 1 was for racing cars and class 2 for touring cars. Under the formula classification the former was won by a Lion-Peugeot driven by Goux and the latter by a Hispano-Suiza driven by Pilleverdier.

Virginia Sociability Run

RICHMOND, VA., Oct. 14.—In a recent sociability run from Newport News, Richmond, eighteen members of the Peninsula Automobile Club motored from Warwick Hotel in Newport News to the Jefferson Hotel in this city, the average time for the 87 miles being 4 hours and 35 minutes. The first prize was awarded to H. J. Lenz, of Newport News; second M. C. Armstrong, of Hampton; third to C. T. Weaver, of Newport News. The run was not for the purpose of attaining a high speed, but the winners were determined by the three who came closest in their time to a figure selected secretly by a committee before the autoists started. The run was staged to stimulate local interest and it was very successful in this respect. It brought out a great many amateur drivers, who could not be induced to enter a severe contest.



President Taft after his arrival at Tacoma, Wash., started for Mount Tacoma. President is in second car

Syracuse Run a Success

SYRACUSE, N. Y., Oct. 14—The annual *Syracuse Herald* Sociability run, held yesterday, was the most successful held since the event was inaugurated 4 years ago. Fifty-five machines participated in a 60-mile run through a picturesque, rolling country southwest of this city, the cars being gaily decked. The run had to be postponed a couple of times because of rain storms, and the continued interest of motorists attested the popularity of the event.

Tradition was put to rout in that car No. 13, an Overland, containing Percival C. Shaw and Mrs. Shaw, came nearest the secret time of 3 hours 35 minutes and 16 seconds, and won possession for a year of the *Herald* trophy cup. Mr. Shaw's time was 3 hours and 30 minutes. He won a solid gold medal.

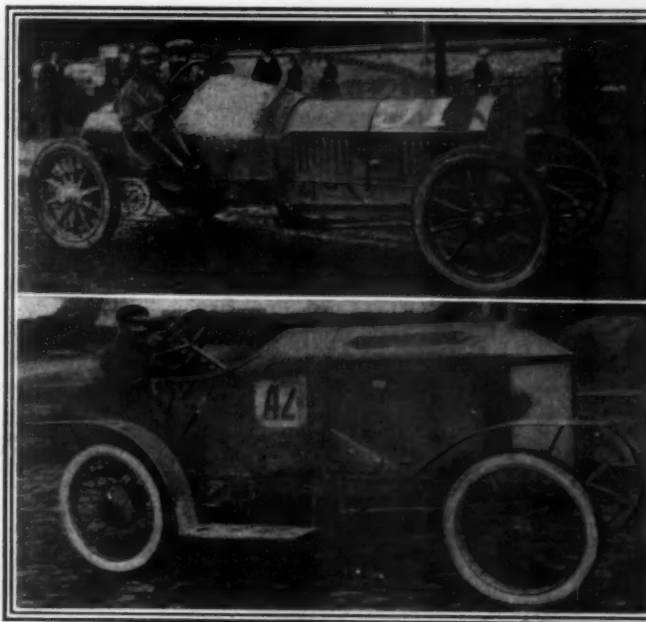
The second prize, which was a loving cup from the *Herald* Company, was won by Carl Ackerman with a Flanders; the third prize, a gold medal, was won by Dr. G. N. Hemmer with a Ford; and the fourth prize, a silver medal, was taken by E. R. Harriman with a Cadillac. Miss Florence MacDonald, with a Lozier, won the first women's prize, a cup from the Automobile Club of Syracuse. Miss Mabel Walliser, with an E-M-F, was second, and Miss Jessie Greis, with a Buick, was third. They received medals. The weather was ideal and the run was enjoyed by all the participants.

Abolish Park Racing?

PHILADELPHIA, Oct. 14—A bombshell was thrown into the Fairmount Park Commissioners at their meeting a couple of days after the running of the Fairmount Park race, when Dr. J. William White, of the University of Pennsylvania, submitted a resolution suggesting the abolishing of the Fairmount Park road race. The resolution read as follows:

"Resolved, That in the opinion of the Fairmount Park Commission, it is inadvisable to continue the automobile races in the park in future years, and that to avoid disappointment and misunderstanding this opinion be transmitted to the persons chiefly concerned, and to make the same public."

No action has as yet been taken, and public opinion may be depended upon to do the rest. Just why the ban should be placed on these yearly events is not clear; four of them have so far been held without accident, providing an afternoon of enjoyment and keen interest to hundreds of thousands who have come to look on the race as an annual fixture.



Laurin & Klement in Gaillon climb

The winning Benz car has been on exhibition in the sporting department of Wanamaker's the past week, constantly surrounded by enthusiasts and the curious.

Detroit Conducts Sociability Run

DETROIT, MICH., Oct. 14—Twenty-one entrants contested in the under-sealed-orders sociability run of the Wolverine Automobile Club, Sunday. It was a perfect day and many of the participants took their families along. The first section of the run was from Detroit to Plymouth, 30.8 miles; the second from Plymouth to Pontiac, 40.1 miles; and the final stretch from Pontiac to Detroit, via Utica, 40.1 miles. The going was excellent with the exception of about 3 miles. C. C. Cross, of the Chalmers Motor Company, won the silver trophy offered by the Home Telephone Company, his time being just 30 minutes slower than that of the pathfinder, which was 6 hours and 45 minutes. W. E. Wilson finished second and H. J. Porter, president of the Wolverine Automobile Club, third.

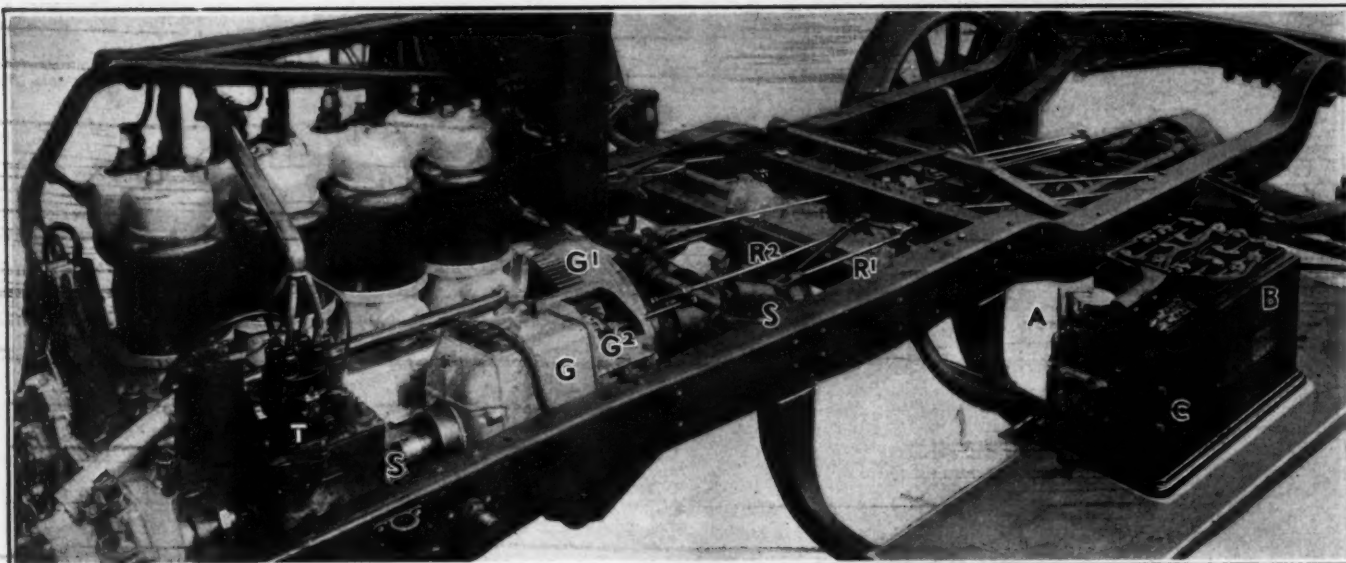


Fig. 1—Comprehensive view of the left side of the motor and the various parts comprising the self-starting device

1912 Cadillac Characteristics

THE new model of the Cadillac car, manufactured in Detroit, Mich., has not undergone any material alteration.

Such refinements as have been deemed advisable in the light of a year's experience have been incorporated in order to render the product more efficient, but the outstanding feature of the 1912 model lies in the new self-starter effected by means of an electric motor which is capable of running both as a generator and as a motor. While running as a motor it starts the engine and afterwards furnishes current for one of the ignition systems and lights the lamps while the engine is running. The carbureter adopted for the new model has received careful study at the hands of the engineering and testing staff of the company

and it is claimed that with this and the increase in the size of the motor bore the engine is considerably more powerful.

The size of the wheels has been increased as well as the diameter of the brake drums. The magneto has been eliminated and the second speed gear ratio slightly raised.

The outstanding feature of the Cadillac motor lies in the method of casting the cylinders. It is constructed on the built-up or individual unit principle. The section through the motor seen in Fig. 4 shows that the cylinder C proper is cast by itself as is also the cylinder head H, which contains the valves. The head is attached to the cylinder by means of the threaded nipple N. The water jackets Cr which surround the cylinders

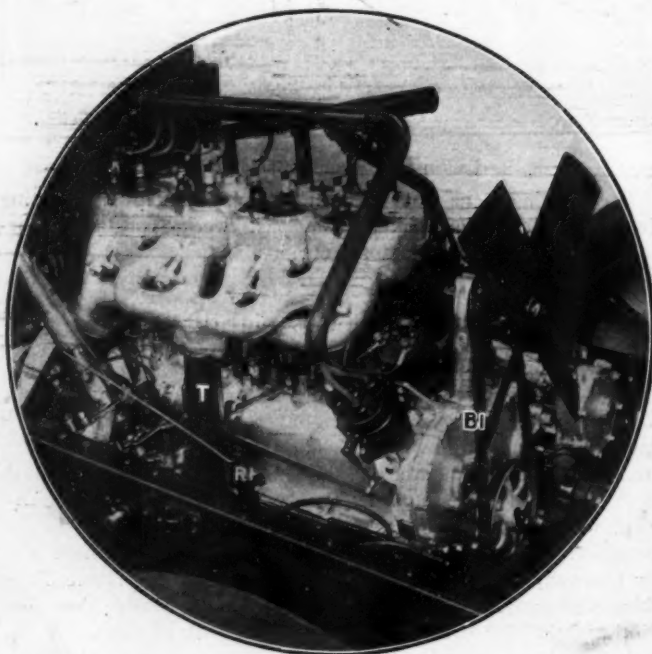


Fig. 2—Right side of the Cadillac motor, showing the new intake manifold and supplementary ignition

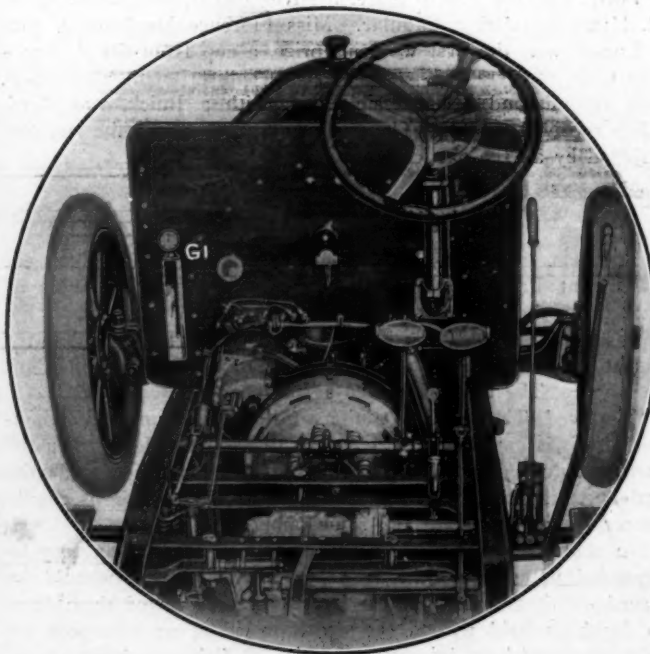


Fig. 3—Part view of the chassis, showing the dashboard and various control parts, electric generator flywheel

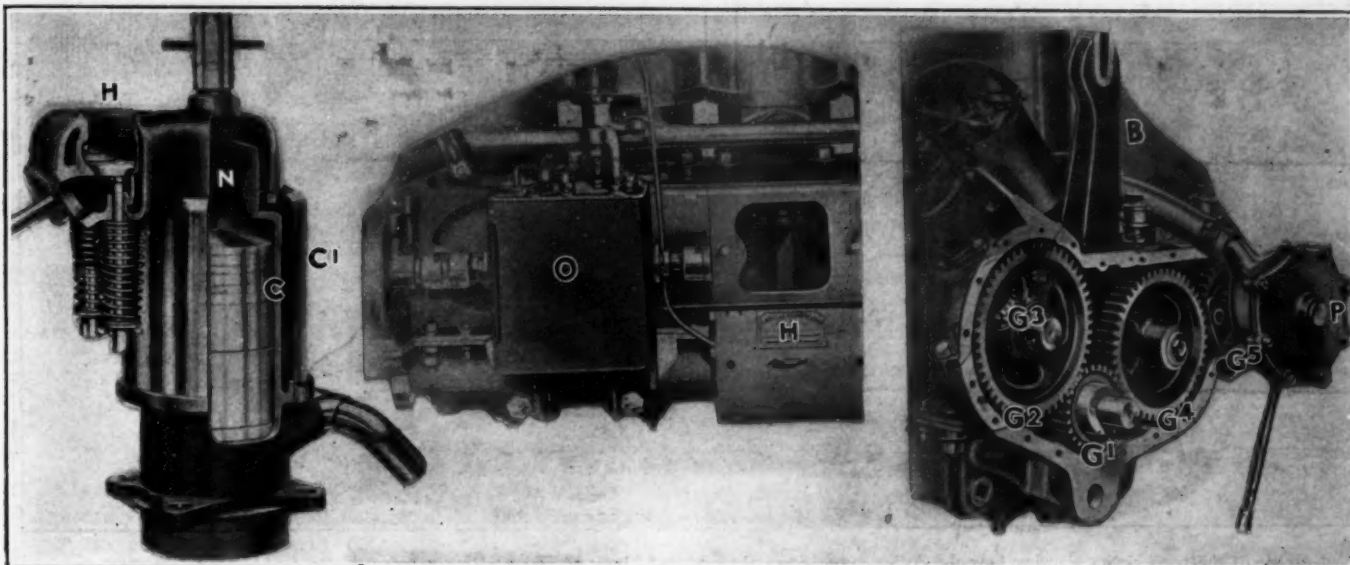


Fig. 4—One of the Cadillac cylinders with part removed

Fig. 5—Showing the oiler and hand hole in base-chamber

Fig. 6—View of the timing gears with the cover removed

are of spun copper and are clamped into position in the manner shown.

The bore of the motor has been increased from 4 to 4 1-2 inches, thereby making the motor what is termed square, the stroke of the piston being 4 1-2 inches also. The size of the valves has been increased in proportion to the bore and they are now 2 inches in diameter. A pointer is attached to the rear of the motor and together with it and the marks on the flywheel the correct setting of the valves and the ignition can be determined.

The valves are all placed on the right side of the motor, as can be seen by referring to Fig. 2, the push rods being fitted with adjustments to take up any wear from time to time.

The cylinders are first machined and afterwards ground to the correct size so that when they pass to the checkers in the controlling department there is never more than 1-1000 inch variation in the bore. Cylinders that do not conform to this strict scrutiny are discarded. The pistons and piston rings are required to pass a similar inspection and are finished by the grinding process also. The connecting rods are drop-forged steel of H-section, and the crankshaft, which is a special alloy

nickel carbon steel drop forging, undergoes a special heat treatment. The journals, 1 5-8 inches in diameter, are accurately ground and the shaft is supported by five main bearings which are made of babbitt with bronze backings. These bearings are made in halves, and should occasion require they may be removed, replaced or adjusted through the hand holes H shown in Fig. 5 without disturbing the crankshaft. The hand holes are provided with covers which are held in position by two bolts for each. The crankshaft is slightly offset; that is, instead of being placed directly in the vertical plane of the cylinders it is to one side. The object of this is to reduce the angularity of the connecting rod at the time of the explosion, thereby relieving the side thrust on the cylinder walls.

The lubrication of the motor is effected by means of an oiler placed on the left of the motor, as shown in Fig. 5. The extension of the pump shaft passes through this and drives a positive oil pump which forces the oil through a sight feed located on the dashboard. The oil is led thence to the front end of the motor into the timing gear case, whence it flows into the lower half of the crankcase, which has webs cast therein so that the oil is led into sumps under the connecting rods. These latter are

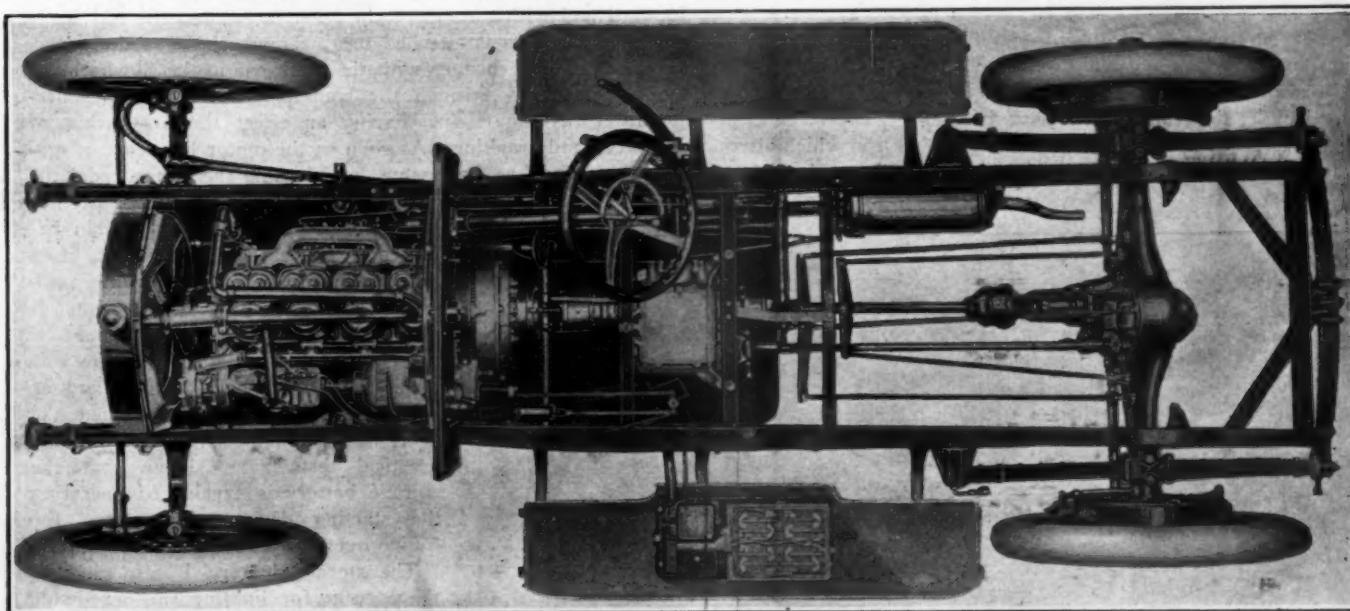


Fig. 7—Plan view of the Cadillac chassis, showing the general characteristics and the co-relation of the various parts

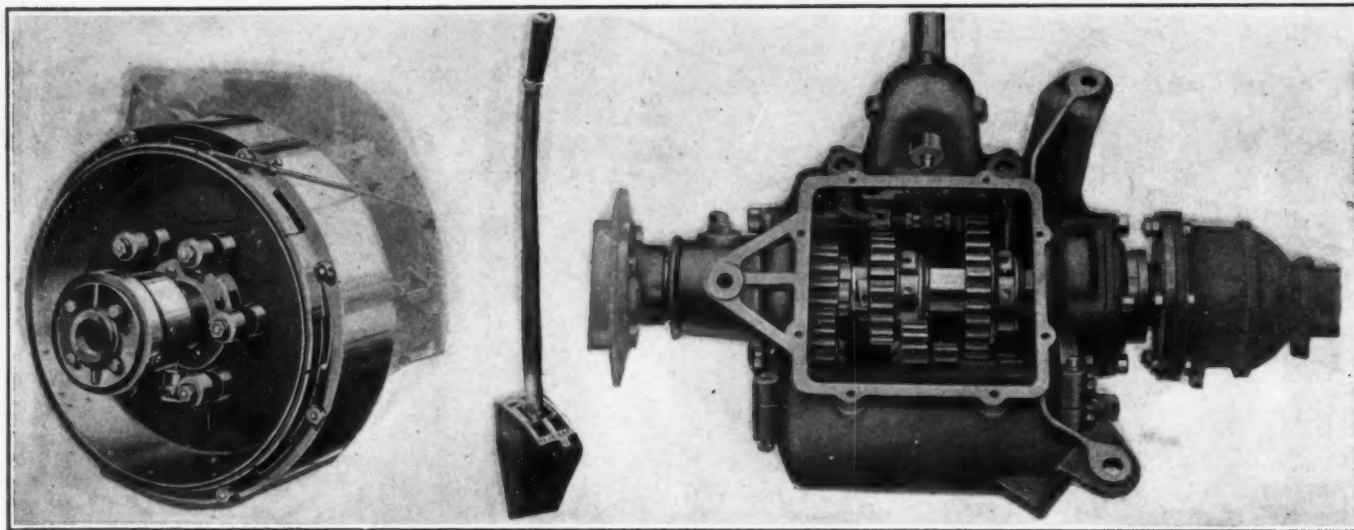


Fig. 8—View of the cone clutch showing how the ring is split for easy starting

Fig. 9—Long change-speed lever working in an H sector

Fig. 10—General view of the gear-box with the cover removed showing the method of support

fitted with extensions that beat the oil at every revolution into a spray for the splash lubrication.

The timing gears have been slightly modified and the cam and idler shafts have been extended so that a bearing can be made in the front cover of the housing. Fig. 6 shows the timing gears with the cover removed. The gear G1 is attached to the crankshaft and causes the gears G2 and G4 to rotate. G2 operates the camshaft and at the rear of this wheel will be seen the bevel gears G3 that command the supplementary ignition. G4 is an idler which meshes with G5. This gear drives the water pump P which is placed in front of the motor, the oil pump, and the Delco ignition system as well as the generator.

The cooling of the motor is effected by means of the water pump just referred to, which takes the water from a vertical tube type radiator placed in front of the motor. The radiator is composed of 150 seamless copper tubes passing vertically through 135 horizontal copper plates and instead of dipping the entire radiator in a bath of molten solder, the tubes are treated so that only the point of contact of the tubes with the plates is covered. The air draft through the radiator is caused by a fan mounted on a bracket B in Fig. 6, wherein a slot is cut to receive the fan shaft. This is maintained in position by means of a nut and permits of easy adjustment. The fan runs on ball bearings and is operated by means of a belt B1, shown in Fig. 2.

The carburetor is of Cadillac design and to insure good evaporation and overcome condensation troubles the mixing chamber has been made exceptionally long and is water jacketed over the entire length; this can be seen at T in Fig. 2. The lever L in Fig. 3, located on the steering column, controls a rod which alters the tension of the automatic air valve spring, giving the driver

a ready means of adjustment without leaving the seat; this can be seen at R1 in Fig. 2. The intake manifold has undergone some changes so as to give each cylinder a separate branch from the main manifold.

Two independent ignition systems are provided with two sets of spark plugs placed in valve covers, shown in Fig. 2. The supplementary set shown in this illustration is the Delco distributor system with dry cell current. Fig. 1 gives a comprehensive idea of the main ignition system, the current for which is furnished by the generator G. The timer T is driven by means of bevel gearing from the shaft that passes through the lubricator and the extension of this shaft S drives the generator G. When the speed of the motor falls below approximately 300 revolutions per minute the batteries B are automatically brought into the circuit and the generator power cut out. Above this engine speed the generator delivers the current direct to the high-tension distributor and thence to the plugs. During this time the part G acts as a generator, but to start the engine it can be used as a motor.

This is effected as follows: The driver takes his seat and presses the button on the top of the two-way switch, retards the spark and releases the clutch, which has the effect of making a magnetic contact at the point S. This causes the rod R1 to move forward and with the aid of the lever interposed the rod R2 is drawn back. This is attached to a gear wheel G2 on the generator shaft which engages with the teeth cut in the flywheel and the current flows through the transformed motor and consequently turns the engine, having an effect similar to that of ordinary hand cranking. As soon as the motor has taken a supply of gas and has fired same, by releasing the clutch pedal the

gear wheel on the generator shaft flies back and the electric motor again becomes a generator, the current from the batteries being cut out by the automatic controller C. An ammeter is provided at A to show the amount of current stored, the capacity of the batteries being 80 ampere hours, and as soon as this capacity is reached the charging automatically ceases. Some practical tests have shown that the storage battery is capable of operating the starting device and turning the engine over for a period of 20 minutes.

The storage battery B also supplies the current for lighting the head, side and tail lamps as well as the speedometer light.

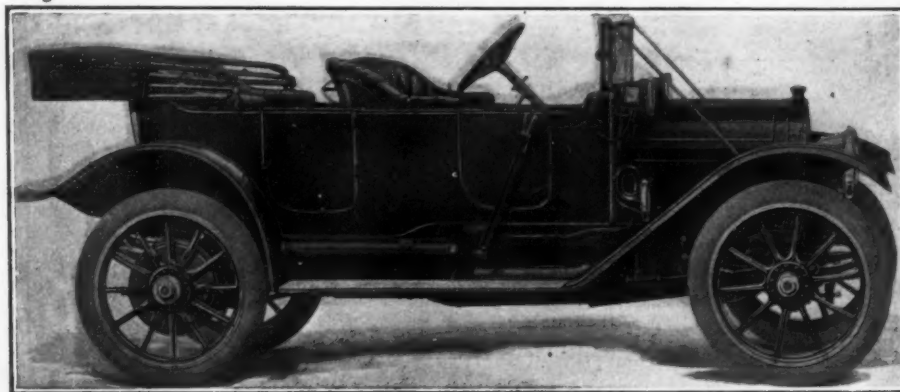


Fig. 11—Fore-door Torpedo body with the gear shift lever placed inside the body line

The motor as a unit is suspended in the chassis frame from three points, the rear of the motor base being bolted at two points to a cross member of the main frame and the forward end is provided with a rocker joint. By this means frame distortions do not affect the alignment of the motor or place any undue strains on the supporting arms.

The clutch is of the cone type, leather-faced, with a special spring ring in the flywheel, as can be seen by referring to Fig. 8. This ring, with which the cone engages, is split at eight points and part of each section is sprung inward, which has the effect of permitting the clutch to take hold gradually. Interposed between the clutch and the gear box are two universal joints entirely enclosed, thereby retaining the lubricant and excluding any foreign matter.

The transmission with the cover removed is shown in Fig. 10. It is of the sliding gear selective type, giving three speeds forward and one reverse. The gears and shafts are cut from chrome nickel steel and the clutch shaft runs on five annular ball bearings. The second speed gear ratio has been increased and attention has been paid to the method of packing the ends of the casing to prevent the leakage of any lubricant. The housing, which is of cast iron, is supported at two points at the rear to a cross member of the main chassis and at one point at the forward end. The gear teeth are backed off, or beveled, by special machinery to permit of easy engagement, and the change speed lever shown at Fig. 9 has been lengthened. It works in an H-shaped quadrant and is placed inside the fore-door.

The power is transmitted to the differential by means of a propeller shaft fitted with universal joints at both extremities, and the torque is taken care of by means of a tubular V-shaped member terminating at the forward end in a bracket attached to the cross chassis member. When the car is carrying a normal

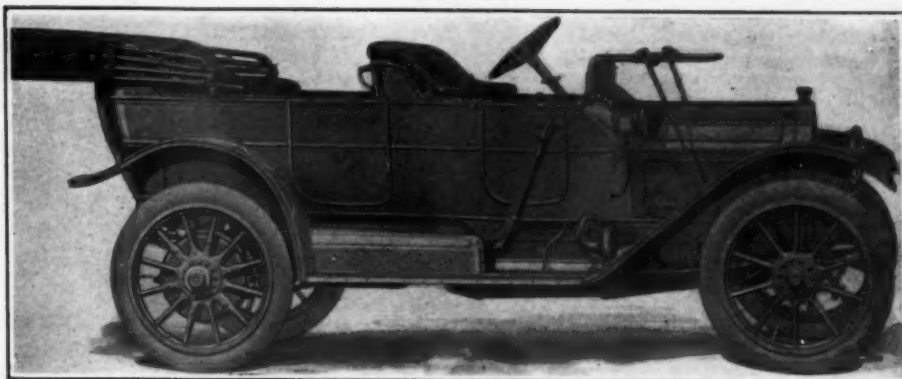


Fig. 12—Standard fore-door touring car fitted to a 30-horsepower Cadillac chassis

load the drive is practically a straight line from the motor to the rear axle. The rear axle is of Timken construction and is full floating, the drive shafts being made of special alloy steel. The general characteristics of the rear axle and the chassis in general can be seen by referring to Fig. 7. This shows the method of equalizing the service and emergency brakes, both of which operate upon the drums attached to the rear wheels. The diameter of the brake drum is 17 inches and the width of the braking surface is 2 1-2 inches, allowing easy operation.

Fig. 7 also shows the method employed for the suspension of the rear of the chassis, which is of the three-quarter platform type, the transverse spring being attached to the semi-elliptic springs by means of universal shackles all fitted with greasers. The forward suspension is taken care of by conventional semi-elliptic springs 36 inches long.

The size of the tires and wheels has been increased to 36 inches, but the wheelbase remains the same at 116 inches, the same remark applying to the tread, which remains at 56 inches.

The gasoline tank, placed under the driver's seat, has a capacity in the case of the touring and torpedo bodies of 20 gallons, and a gauge is provided on the dashboard to register the contents of the tank.

A Rubber Revolution Promised

At the London Rubber Show there was exhibited a piece of very excellent vulcanized rubber which had not been produced in the usual manner, it was said, but had been turned out in Brazil by a process by which the rubber was melted and cast, the vulcanization taking place during the cooling. Highly skeptic with regard to the possibility of casting rubber, as reports of similar kind have been circulated many times before, the publishers of the German *Gummi Zeitung* made inquiries in Brazil, and in due time they received a report from C. Meisel, of Para, who was at that time representing a European syndicate in negotiating with the Government of Brazil for the purchase of large tracts of land for *corracha* plantations. Mr. Meisel stated that he had been informed by Dr. Innocencio Hollanda, of Lima, Peru, that an invention promising to revolutionize the rubber industry had really been made by a former *seringueiro* (rubber gatherer), Conrado Ramos Bastos by name, living at Portel, a small town on the Pacajá river. By his process Bastos could simply and quickly produce a high grade of vulcanized rubber from a raw material consisting of *corracha* of many different grades mixed together. Dr. Hollanda showed Mr. Meisel three samples of the man's work; a rubber strap, 20 centimeters long, 15 centimeters wide and 2 millimeters thick, and two pieces in the form of sticks, 15 centimeters long and 1 centimeter in diameter. The color of these pieces was dark blue, and their elasticity was something marvelous. Meisel now sought the inventor and finally found him in a little adobe cabin in poverty-stricken sur-

roundings. He is a very intelligent *caboclo*, says Mr. Meisel's report, who has worked more than twenty years as *seringueiro* in the virgin forests of the Amazon river district as well as on the Beni river in Bolivia and in Peru. During all this time Bastos has sought for means to transform the many grades of *corracha* into a single typical raw material and also for a simplified method of vulcanization. During the last two years his efforts have been crowned with success, and lately he was requested by the Governor of the State of Para, Exm. Sur. Dr. Joao Luiz A. Goelho, to produce a number of samples in the presence of this gentleman and that of Dr. Huber, director of the Goeldi museum of Para. (Dr. Huber confirmed this by letter direct to the publishers of *Gummi Zeitung*.) The process required 3 1-2 hours, but the inventor worked with the most primitive implements, forming the molds from clay with his own hands and himself preparing the charcoal for the heating. The mixture which he adds to the melted *corracha* is his only secret, and to a representative of the Brazilian Government he is said to have stated that it is made from a substance which is found in inexhaustible quantities in all of the Amazon river valley. To 1 kilogram of *corracha* the inventor adds 1 1-2 to 2 kilograms of this admixture, and the resistance and elasticity of the product is not only not reduced thereby but increased. Mr. Meisel adds that it can only be a question of a few months before the invention must become known and practised on a large scale everywhere.—From *Gummi Zeitung*, September 8.

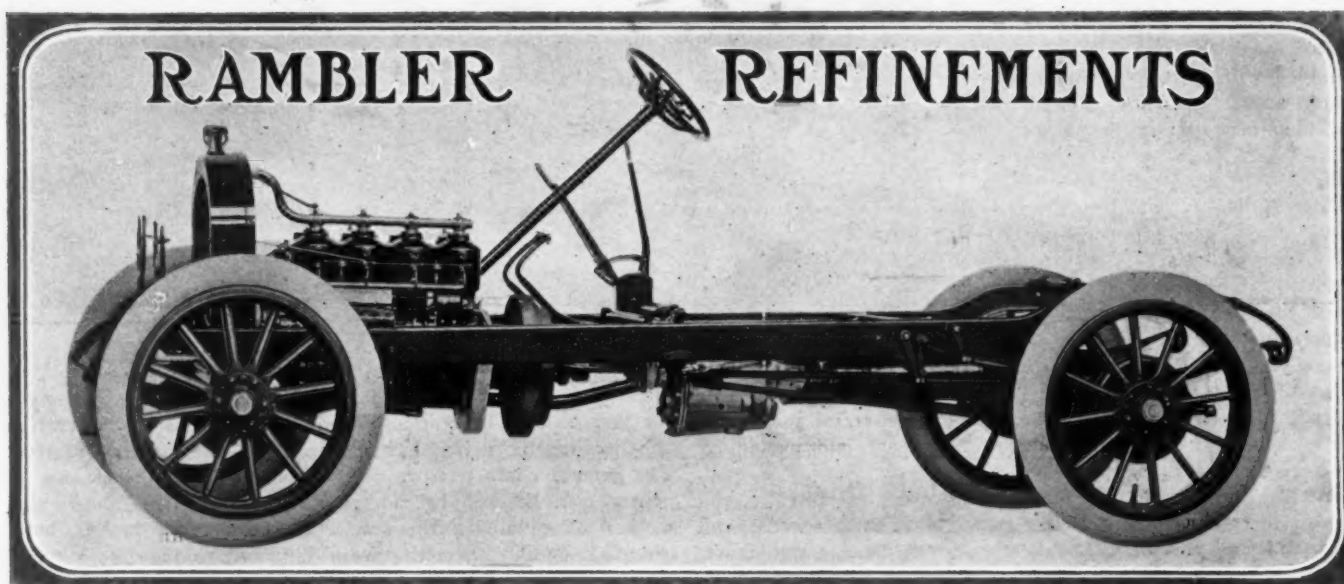


Fig. 1—Side view of the Rambler 38-horsepower chassis, showing the straight line drive and the upswept frame

THE forthcoming season's models of Rambler cars, manufactured by the Thomas B. Jeffery Co., of Kenosha, Wis., discloses a choice of four types of chassis, which with optional bodies provide eleven distinct styles.

The Rambler characteristics are retained, with several detail alterations and improvements. Among these may be mentioned a new I-beam front axle, higher radiator with increased cooling area, positive driven oiler, improved gear-shifting mechanism, a slight alteration in the clutch, strong gusset plates at the rear end of the frame and three-quarter elliptic springs to take care of the rear suspension.

In order to differentiate between the 38-horsepower and the other models that model will first be dealt with.

Each model will be known in future by a name instead of horsepower or series number, and the 38-horsepower model is fitted with three styles of body work. The Cross-Country is fitted with a five-passenger touring body, the Suburban with a four-passenger torpedo and the Roadster, as the name implies, with seating capacity for two.

The wheelbase of the 38-horsepower models is uniform, being 120 inches on all, and the present trend for large wheels has been followed by providing 36-inch wheels fitted with 36 x 4 inch tires.

The front of the car, which is usually the characteristic feature of any automobile, has been materially altered, as may be seen by referring to Fig. 5. The height of the radiator has been increased and a higher filler cap mounted upon it, the contour of the top being given a decided arch. The I-beam front axle is also shown in this illustration, with the cross bar coupling the steering arms placed in the rear of same. Taper roller bearings are employed throughout, both

for the wheels to run upon and to take up the thrust of the steering knuckle pins. The starting handle shaft is extended forward so as to clear the dumb irons, two brackets, A1 and A2, being provided to form the outboard support.

Detachable wheels, a feature of Rambler cars, is still retained, but instead of being provided in the general equipment, as heretofore, it is now supplied at a slight extra charge. Provision has been made to carry this part at the rear of the body in the manner shown in Fig. 6, instead of on the running-board, as formerly.

The power plant shown in Fig. 2 discloses several alterations over previous seasons' models. The method of casting the cylinders has been retained; likewise the connection of the joints for the water manifolds. The bore and stroke of the 38-horsepower motor is identical—4½ inches—and the cylinders are cast with L-shaped heads. Some alteration has been made in the arrangement of the timing gears, as well as in the housing. Instead of having the water pump in front of the motor, this part has now been placed nearer to the cylinders and is driven by the half-time shaft, the forward end of which protrudes through the timing gear case shown at T, and the pulley P

for driving the fan belt is attached thereto.

The water pump may be seen at P in Fig. 2, and a drain cock D is fitted in the base for emptying the water in cold weather or when it may be found necessary. Packing glands are provided at the forward and rear portions of the body of the pump where the shaft passes through.

The continuation of the shaft drives a pump in the oiler O, forcing the oil into the sight feeds S and thence from seven leads—three to the main bearings of the crankshaft and one lead to each cylinder. The method of driving

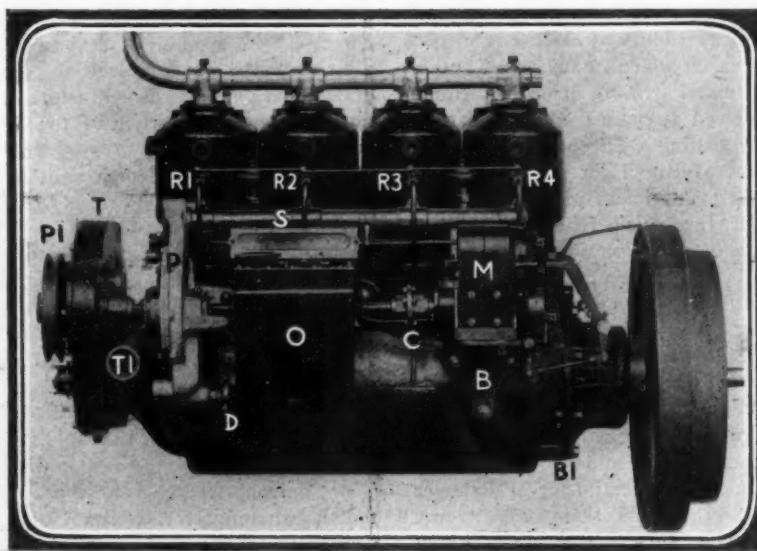


Fig. 2—Side view of the motor, showing the water pump, oiler and magneto

the oiler differs from previous practise, and the magneto M has been placed farther back and is driven by a continuation of the pump and oiler shaft. Interposed in the drive is a universal jointed coupling C, which, besides insuring that disalignment shall not cause any strain on the armature shaft, allows the magneto to be readily removed. Access to the magneto is obtained either by lifting the hood or through a trap door provided in the floor boards.

In Fig. 2 is shown the method of supporting the motor. The tube T₁ is built up with the motor base and terminates at either side of the chassis frame in suitable clamps bolted to the side members. By removing the nuts that hold these clamps in position the latter can be slipped over the tubes sufficiently far to clear the frame. A cross member of the frame passes beneath the rear of the motor at the point B₁ and bolts pass through it, clamping the rear of the motor in position. A feature of Rambler design lies in the straight line drive from motor to rear axle, and to obtain the requisite amount of slant to the motor, babbitt is run in between the motor base and the cross member until the correct alignment is reached.

Compression release cocks R₁, R₂, R₃ and R₄, are fitted to permit of easy starting, the residue of compression being carried by small copper pipes to the side of the motor and the operating lever controlling the cocks is placed on the side of the radiator.

Ignition is furnished by a high-tension magneto, the position of which has already been described. Carburetion is effected by means of a Holley carbureter and a manifold of improved construction, doing away with the loops over the motor.

The clutch shown in Fig. 3 has also undergone some minor changes, although in principle it is virtually the same as that adopted last year. It is of the internal expanding type and operates inside the fly-wheel. The clutch pedal and arm force the arms A₁ and A₂ forward, which has the effect of rocking the arm

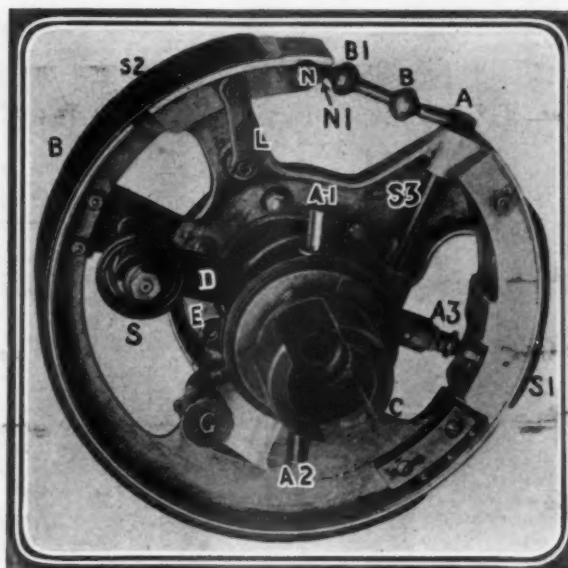


Fig. 3—Details of expanding clutch, showing the two adjustments

arms A₁ and A₂ form part of a ball-thrust collar, which is held in position by a tie rod from the main frame to the eye E and lubricated by the greaser G. When the clutch pedal is released the expansion of the band is maintained by the spring S.

The plan view of the chassis, Fig. 4, shows the general assembly of the motor, clutch, gearset and rear axle, and Fig. 1 gives an idea of the straight-line drive. The gear-box is attached at its forward extremity to the central cross member of the frame and the aluminum housing of the gear-box is cast on to the tube surrounding the propeller shaft. The main shaft of the gearset is a continuation of the propeller shaft and the change of gear is now effected by a straight-line pull upon the shifting rods. Two arms attached to these are fitted by means of brackets to the propeller shaft casing, as may be seen in Fig. 4. The change-speed lever, as well as the brake lever, have been placed within the body line, and as the gears are of the selective type, the gear-shift lever works in an H-type sector. Three forward speeds and reverse are provided.

The final drive is by live rear axle, the weight of the load being taken upon roller bearings. The drive shafts and the gears are forged integral and the road wheels are secured to

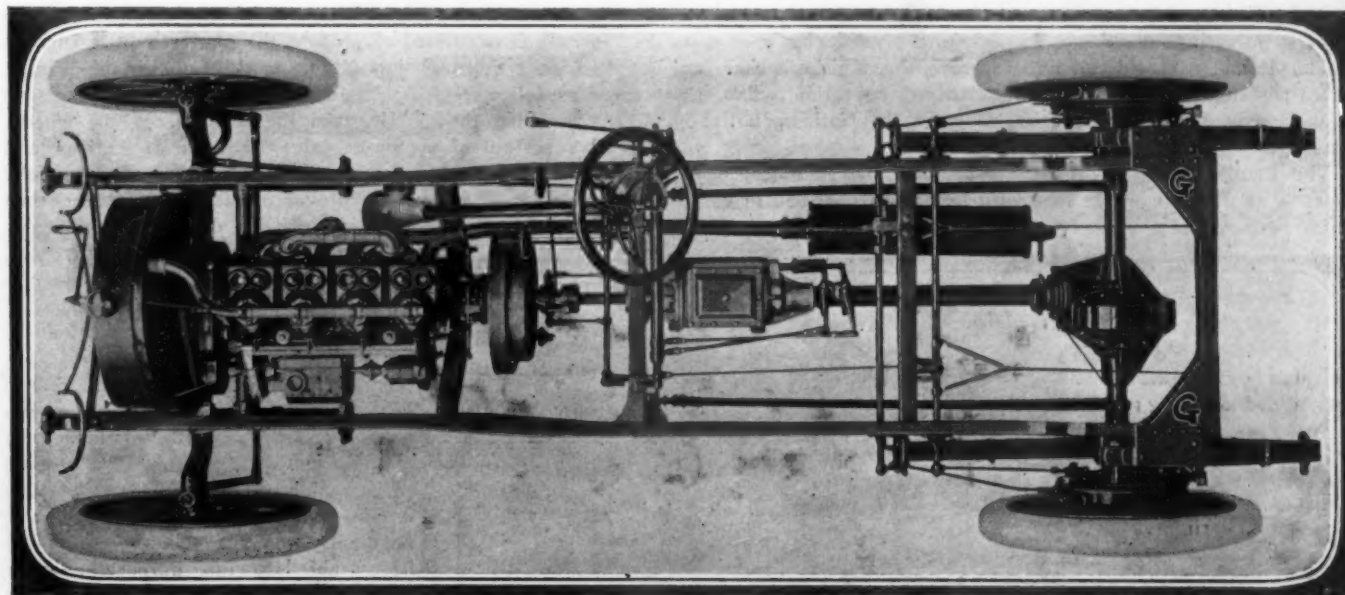


Fig. 4—Plan view of the Rambler chassis, showing the co-relation of the various units

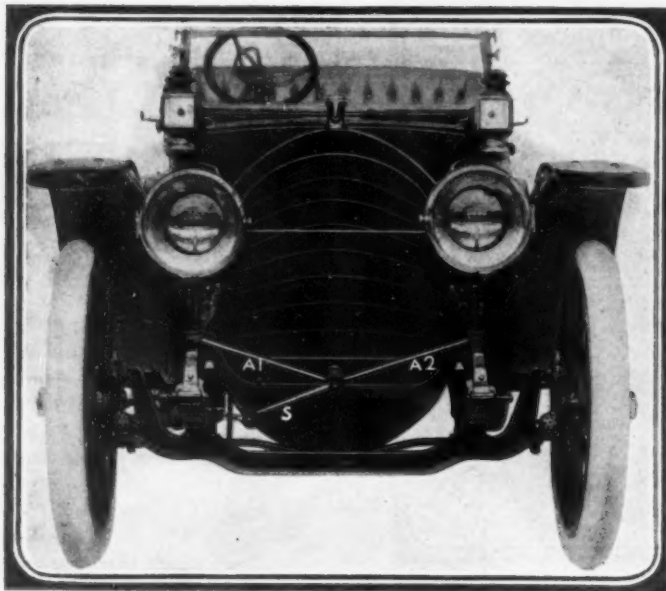


Fig. 5—Front view of the new Rambler, showing the radiator and the out-bound supports for the starting handle

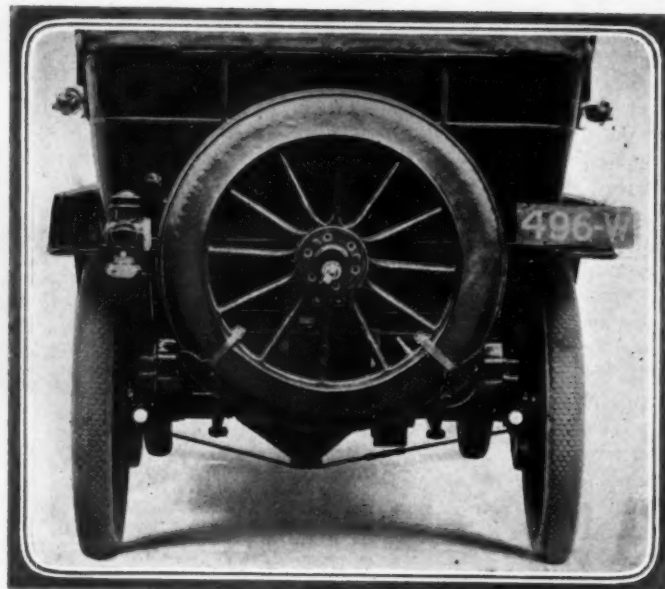


Fig. 6—View of the rear of the car, showing the method employed in carrying the spare wheel

the ends of the shafts by means of squared taper ends. Stout gusset plates have been incorporated in the construction of the rear end of the frame, as shown in Fig. 4, the extensions of which form the anchorage of the top brace of the three-quarter elliptic springs. The torque of the rear axle is taken up in the two radius rods, terminating at their forward extremities in ball sockets, permitting of a certain amount of angularity without causing any binding effect.

Two sets of fully equalized brakes are provided, both operating upon the brake drums attached to the rear road wheels.

The essential features described above apply in general to the 50-horsepower models, the motor of which has a bore of 5 inches and a stroke of $5\frac{1}{2}$ inches. Dual system of ignition is employed, and in the case of the Metropolitan, Greyhound and Moraine, the size of the wheels is 40 inches in diameter.

The Country Club, Valkyrie and Moraine are fitted to one type of chassis, having a tubular front axle and seven-eighths elliptic spring suspension at the rear. The first two of these are fitted with 36-inch wheels and have a 120-inch wheelbase; the Moraine, which is a seven-passenger touring car, has 128-inch wheelbase. The Metropolitan, a seven-passenger touring car, and the Greyhound, a six-passenger, are fitted with three-quarter elliptic springs and have a wheelbase of 128 inches.

The Rambler closed-car line includes the Knickerbocker, a seven-passenger limousine of the Berline type; the Sedan, a four-passenger with closed cab seats, and the Gotham, a five-passenger limousine with cab sides.

The standard coloring of the majority of the Rambler body types is an English purple lake with black beads striped in car-

mine, with the metal furnishings nickel finished. The fenders and valance fillers are japanned black. An option, however, is given in the majority of styles for the customers who prefer a lighter coloring, and for these Brewster green can be furnished, as also can a certain shade of gray, known as Rambler gray, in the case of the Roadster.

The equipment of the cars includes head lamp with gas tank, side lamps, tonneau hinged robe rail, adjustable foot rest and complete set of tools. The Roadster has a trunk with suit cases placed on the rear platform. The interior of the closed cars is trimmed in Bedford cord and some of the fittings include silk blinds on automatic rollers, electric dome light in the ceiling, toilet case and speaking tube.

Winter Storage of Car

WHEN the use of the car is given up for the cold weather season, the car should be jacked up off of the tires, some air let out of them so as to reduce the pressure, and the whole washed very thoroughly, particular attention being paid to the removal of all traces of oil. Water does not harm the tires or the rubber composing them in the least, but oil and gasoline do. In case it is desired to go into the matter a little further, and do a more thorough job of putting them up for the Winter, proceed as follows:

After washing thoroughly, take the tires off of the wheels, take the tubes out of the shoes, paint the inside of the shoe and the outside of the tube with graphite, wrap both very carefully in cloth or heavy paper, paper over cloth being the best, then store in some dry, dark place, preferably where the temperature is very even all Winter and not far from 30 degrees Fahrenheit. Light is a great enemy of rubber, as is also heat; by putting the protective covering around the tires, then keeping them away from light and heat, there will be absolutely no deterioration, no matter how long they may be kept put away. This method of procedure is really worth the time it takes. Of course, none of the ordinary oils used for paint bodies would be suitable for this purpose, as they would rot the rubber. What is meant by painting with graphite is that it should be applied in its powder form.

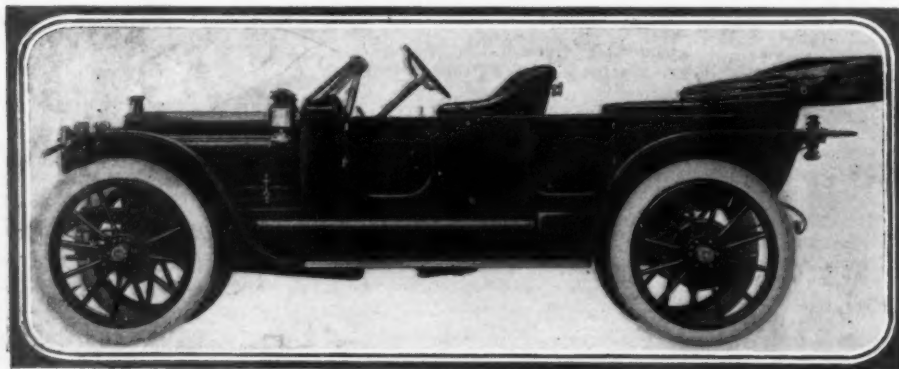


Fig. 7—General appearance of the Greyhound Rambler with fore doors and sloping cowl

PREVENTABLE BREAKDOWNS—There are road breakdowns which, although apparently not the fault of the car owner or driver, will on examination show that they could have been prevented if proper precaution had been taken. One instance which may be taken is the damage which ensues from a broken ball in a bearing. The breakage of other balls and the grinding of the race could have readily been prevented by even a casual inspection before starting upon the trip. Cleaning the ball bearings in order to remove every particle of grit from the race is as essential as the lubrication of the bearing. No one would think of allowing a bearing to run without oil, yet many neglect the cleaning of the bearings, an operation that is in every way as important, even though it is never required more often than about once in two weeks. Many a trifling knock which would have soon developed into something serious, and many an impending stripped gear has been forestalled at an expenditure which is far less than it would have been if the owner had waited until the accident had occurred. The car should never leave the garage without the full confidence of the owner that it is in the best state of repair and adjustment and that it is clean.

Among the New Books

TEXT BOOK OF THE ELEMENTS OF MACHINE WORK. By Robert H. Smith, Massachusetts Institute of Technology. Published by Industrial Education Book Co., Boston, Mass. 192 pages, 5 x 8, 204 illustrations. Cloth, \$2.00.

The fundamental principles of bench work have been taken up in this copiously illustrated book as well as the elements of machine practice and mechanical drawing. The book consists of 371 numbered paragraphs, each headed by a topic sentence in bold-faced type. A classified table of contents and an alphabetical index guide the reader or student in his perusal of the work or in his search for a particular item.

The book is complete enough to be used as an elementary reference work for the apprentice or student of shop practice. A table of decimal equivalents concludes this useful book, which will no doubt find favor with those interested in the subject matter treated.

QUESTIONS AND ANSWERS FOR AUTOMOBILE STUDENTS AND MECHANICS. By Thomas Russell, A.M., M.E. Published by The Charles C. Thompson Co., Chicago. 150 pages. Leather, \$1.50; cloth, \$1.00.

While undoubtedly a book intended only for students of automobiles and automobiling, its completeness would justify a posi-

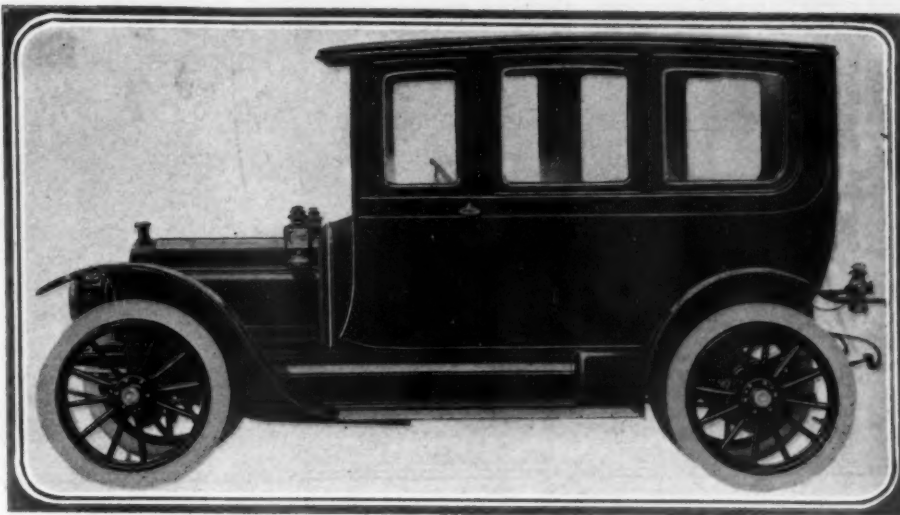


Fig. 8—Side view of the sedan body fitted to a Rambler Chassis with a single door

tion in any library on this interesting subject. The questions are terse and are answered in such a way that there is no doubt as to the meaning intended. Mr. Russell, who has written other works on this and kindred subjects, has aimed to bring out the salient features in each part upon which he has touched, and he has done so, as will be demonstrated by a perusal of the work.

A separation of the questions and answers renders the book very satisfactory for self-instruction, and by its completeness it is made fully capable of being used as a text book. Its scope is very wide, taking up first the motor car in general and then covering the different essential details.

TEXT BOOK OF THE PRINCIPLES OF MACHINE WORK. By Robert H. Smith, Massachusetts Institute of Technology. Published by Industrial Education Book Co., Boston, Mass. 388 pages, 5 x 8, 434 illustrations. Cloth, \$3.00.

The uses of the various tools connected with the various operations at the bench and at the various machines are here brought to the reader in a clear and concise form which will be very much appreciated by the student of machine work. The work is profusely illustrated in such a manner that the methods of carrying out the operations are brought vividly to the mind of the student. The methods of making the calculations involved in practical work are also shown and typical examples given to augment their usefulness.

As a reference work this book should have as large a field as when used as a text book since it is very complete so far as the ordinary shop undertakings are concerned and is well indexed. A set of tables and data of a very useful nature conclude the work.

AUDEL'S ANSWERS ON AUTOMOBILES. By Gideon Harris and Associates. Published by Theo. Audel & Co., New York. 476 pages, 380 illustrations. Cloth, \$1.50.

In this work a very complete set of questions and answers are furnished. The topics dealt with range from questions and replies on fuels to information on the driving and mechanical arrangement of the automobile.

Each chapter is introduced by explanatory remarks on the subjects contained therein, and is amply illustrated. The book as a whole is very satisfactory and will no doubt find its way into the libraries of those who wish a concise, well-written book treating of the details of the construction and upkeep of the automobile.

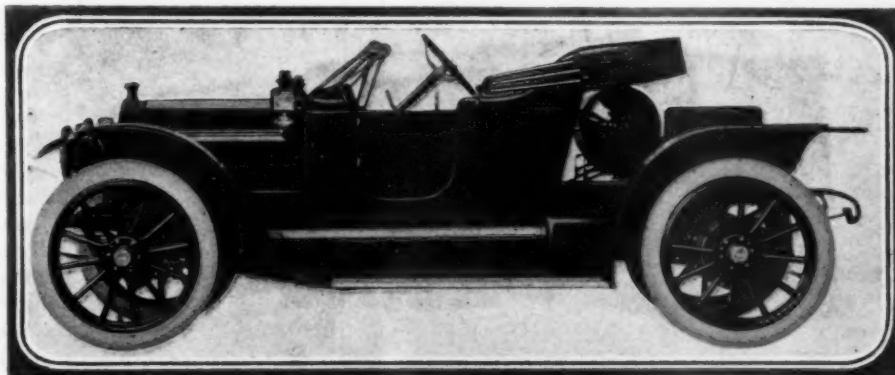


Fig. 9—Side view of the fore-door Rambler with gasoline tank placed behind the driver's seat as well as the trunk with suit cases



Fig. 1—The C. I. M. A. tractor has a motor with 10-inch bore and 15-inch stroke

Adapting the Motor to Farm Uses

French Agricultural Motors

AUTOMOBILE clubs in France are finding a large field for work in arranging trials for agricultural motor machinery and implements. In a contest recently held at Roubaix by the Automobile Club de France in co-operation with the Automobile Club du Nord and the Association of French Manufacturers of Agricultural Implements, the machines submitted for test were two tractors, the Cima and the Lefebvre, made at Rouen; a motor plough made by P. Gilbert, Paris, and another motor plough made by Landrin of Soissons. Both the ploughs are of the revolving-disk type. A Linard-Hubert motor plough had also been entered, but was prevented from taking part in the trials. According to the report rendered by the committee on agricultural machinery of the Automobile Club de France, the features considered in the contest by the judges were: First, the execution of the work; second, the cost of the fuel or energy (electric current) consumed in tilling 1 hectare of land (1 hectare equals 2.471 acres); third, the time required for transportation and getting ready; fourth, the number of workmen necessary for operating the implement; fifth, the facilities for using the implement under different conditions of soil and surface, and, sixth, the possibility of utilizing the motor of the implement for other agricultural work.

To obtain a basis for comparison among the different machines all of them were required to work at a minimum depth of 15 centimeters (5.906 inches). The fields used for the trials on the first day were in stubble, while those worked on the second day had been turned over, and the soil was found particularly hard and dry, being thin with a clay subsoil, which rendered it necessary to make the furrows relatively shallow. The agricultural experts pronounced the conditions highly unfavorable. The shape and size of the fields necessitated too frequent half-turns for machines especially intended for work on large farms, and the cost of the work per hectare was considerably

increased by this condition. It was ascertained that the strip of land left untilled at the edge of the fields, by reason of the space required for turns, reached a width of 36 to 45 feet in the case of the Cima tractor, 45 feet for the Lefebvre tractor and 6 to 15 feet for the two ploughs. In the case of the ploughs this width of waste area may be further reduced by backing them up, with the rotary disks raised. The time used in making a turn, counting from the finish of one furrow to the beginning of another, was 1 minute 20 seconds for the Cima tractor (also known as the Osborne, being apparently of English or American origin), 2 minutes for the Landrin plough, 2 minutes 30 seconds for the Lefebvre tractor, while the Gilbert plough drew a continuous furrow, describing a rectangle with rounded corners.

The Cima obtained the gold medal of the Association of Automobile Manufacturers and the silver medal of the Association of French Manufacturers of Agricultural Machinery. The Landrin got the silver-gilt medal of the Department of Agriculture and one-half of the prize offered by the Agricultural Society of France; also the silver medal of the A. F. M. A. M. The Lefebvre got the silver-gilt medal and the other half of the prize of the Agricultural Society as well as the silver medal of the A. F. M. A. M. The Gilbert finally obtained the silver medal of the Department of Agriculture and the silver medal of the Agricultural Society. Several mechanics connected with the trial received individual awards.

The contesting machines, some of which are shown in the accompanying illustrations, are described by the club committee substantially as follows:

The Cima, or Osborne, tractor carries a 25-horsepower horizontal motor with two flywheels, of the type ordinarily employed for industrial purposes, and the power of the motor is transmitted to the two large rear wheels by trains of gears thrown into engagement by a friction clutch. The small front wheels are steered by chains from a steering post at



Fig. 2—Landrin rotary-disk plough and tractor

the rear of the vehicle, so that the driver at the same time can watch the course of the tractor and the operation of the plough. The motor cylinders are of 254 mm. (10 inches) bore and 381 mm. (15 inches) stroke. The crankshaft speed varies from 230 to 290 revolutions per minute, and the diameter of the flywheels is 1.33 meter (4 feet 4 inches). The driving wheels measure 1.75 meters (5 feet 8 3/4 inches) in diameter, with a tire width of 0.55 meter (1 foot 9 1/2 inches). In case of excessive humidity in the soil extension rims can be put on the driving wheels, bringing the tire width to 0.75

meter (2 feet 5 1/4 inches). The all-over measurements of the tractor are 4.96 meters (16.5 feet) in length and 2.46 meters (8.2 feet) in width. In the trials the plough drawn by the tractor was a Mogul with five shares, any one of which can be raised and taken out of use independently, and the moldboards are arranged to raise themselves if a rock in the ground or other obstacle is encountered. The Cima requires three attendants for operation with a plough.

The Landrin rotary-disk plough or cultivator (Fig. 2) comprises two distinct parts, the motor chassis and the cultivator chassis. The motor chassis differs from an ordinary automobile chassis in the following features: The driving wheels are equipped with movable cleats (traction ribs) mounted around an eccentric which serves to either push the cleats out from the surface of the wheel rim or to draw them back, the eccentric being so placed that the cleats project from the rim where the latter is going, into contact with the ground and recede when the contact has taken place. The object is of course to increase the adhesion, but also to remove automatically the soil which may cling to the cleats. By means of a suitable displacement of the eccentric the action can be reversed, so that the projecting ribs recede at the point of contact with the ground, and this facilitates the travel of the cultivator on hard roads. The motor chassis supports a winch intended to raise the cultivator chassis by means of a cable, and a worm gear renders this winch irreversible. The conductor can throw the motor shaft into gear with the winch by means of a lever within his reach, and thus by a single movement stop and resume work, as at turns.

The cultivator chassis is triangular in shape, and the base parallels a shaft on which four steel disks are secured, and the apex of the triangle is connected with the motor chassis by means of a



Fig. 3—Gilbert's plough combined with tractor

supporting each one end of the disk shaft.

Gilbert's self-propelling plough Fig. 3 is meant for doing all the work in preparing soil for seeding, and the designer has had in mind to accomplish this purpose with a relatively light construction, while providing means to prevent the oblique thrust of the rotating disk from influencing the direction of the machine and also for enabling the driver to watch and regulate the operation of the machine. Of the two rear wheels only the one on the right-hand side is a driving wheel, the left one serving only for support. The front axle is secured to the chassis by a system of joints in such manner that the steering wheels may follow all the inequalities of the soil without changing the horizontal position of the chassis, and the wheels are offset to the right, so that the driving wheel tracks the width of one furrow to the left of the right hand front wheel. The disk, in the shape of a spherical segment, is secured to the chassis between the front and rear wheels by means of an arm, and a transverse shaft around which the arm turns when raising or lowering the disk may also serve as axle for the left rear wheel, this being the method adopted for securing a horizontal position of the chassis, when the machine is at work as well as on the road. The motor drives the disk as well as the driving wheel. The mechanical connection with the disk is effected by a spurwheel and a bevel pinion, running in a casing, and the pinion is connected with the vehicle transmission by a removable chain, so that a simple play of gears permits the driver to adjust the speed of the disk to the nature of the soil and the rate of progress of the vehicle. On the road the chain may be removed. The disk turns in the direction opposite to the movement of the vehicle and at a superior speed, with a view to turning the soil over in a work-

(Continued on page 683.)



Fig. 4—The Linard-Hubert tractor with its detachable ploughing equipment

Letters Answered and Discussed

Measuring Compression Space

EDITOR THE AUTOMOBILE:

[2,868]—Would you kindly inform me if there is any gauge which is made for the purpose of measuring the compression space in the different cylinders to ascertain whether it is the same in all of them?

(2) What would be the results which would arise in case these compression spaces were not equal?

(3) How is it possible to determine when the piston on a certain cylinder has reached the top of its stroke?

I have a four-cylinder motor of 30-horsepower and I wish to ascertain if the compression is the same in all the cylinders, as the motor has been run for a considerable length of time and I am afraid that there has been considerable wear.

CARL KEISER.

Portland, Me.

(1) A gauge which will be familiar to any one who has worked about a carpenter shop to any extent may be used to advantage in measuring the piston clearance of the cylinders. The gauge and the manner of inserting in the pet cock aperture are shown in Fig. 1. The motor is slowly turned over, and when the spindle has been pushed by the piston as far as possible through the cross piece of the gauge, which is held flat against the top of the cylinder, a reading may be taken off the spindle and the clearance of the piston plus the thickness of the walls and water jacket space will be given. A note is made of this reading or the gauge may be nicked at the point where the gauge registered with the cross piece. This can then be checked in the

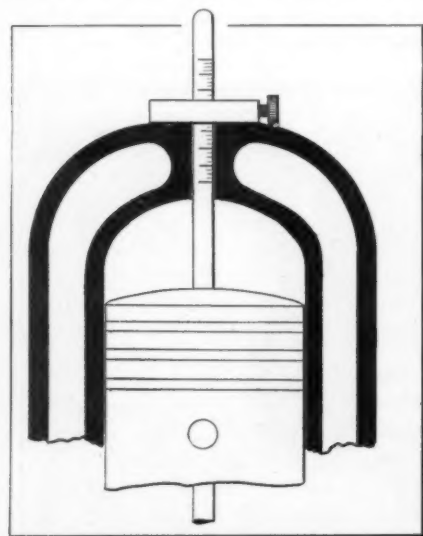


Fig. 1—Gauge used in testing the compression space in the motor

other cylinders and should agree exactly.

(2) In case the compression spaces differed the motor would be out of balance and the impulses on the cranks would differ in force. Vibration and rocking of the motor on its foundations would be the natural result of the unbalanced forces.

(3) The piston has reached the top of the stroke when it ceases to push the gauge. There are very often marks on the flywheel which denote the dead centers of the engine when they register with marks on the frame of the motor.

The fact that your motor has been run

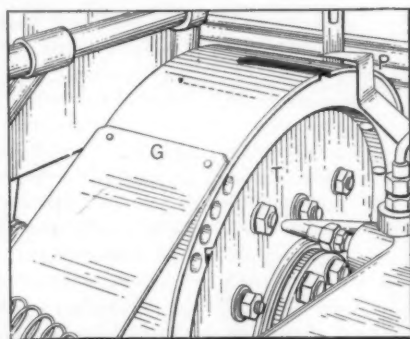


Fig. 2—Guard placed over the flywheel to prevent oil slinging

for a long time does not indicate that there has been any change in the relative compression space, as whatever wear there has been will no doubt have equalized itself by wearing the corresponding parts in all the cylinders a like amount. If there is anything wrong with the compression it will probably be in the nature of a worn valve seat or valve which needs regrinding or in leaky plugs and other openings into the cylinder.

Needs Mud Guard

EDITOR THE AUTOMOBILE:

[2,869]—I am driving a truck and am much troubled by the oil being thrown about by the flywheel. Could you tell me of a method of stopping this? The oil will leak up through the floor boards and completely soak through anything which happens to be resting upon them. Besides this the dirt will adhere to the oil and cause a great deal of trouble in keeping the truck clean.

M. F.

New York City.

A mud guard such as is indicated at G in Fig. 2 should be fitted. This consists of a flat piece of tin which is carried across the flywheel and fastened to the chassis frame by means of bolts. A groove is cut as shown in the guard, so that the mark-

ings on the flywheel will be visible below the indicator P and when setting up the engine the correct timing may be maintained without trouble.

Fitted New Carbureter

EDITOR THE AUTOMOBILE:

[2,870]—I have a 1906 car which I have changed over to a jump spark and have also fitted a new make of carbureter. It runs very well on level ground and takes most hills on high speed. But sometimes when taking a long one on high speed it will choke up and fire only on three cylinders. After the engine has been allowed to speed up by throwing out the clutch, when the top of the hill is reached, it will once more hit on all four cylinders. Could you tell me the trouble?

2. What was the horsepower of the car which won the 1910 Grand Prix?

New York City.

A. E. W.

The probabilities are that you have used a carbureter too small for the engine to which you have fitted it. You are not getting enough air and too much gasoline.

2. The horsepower of the car which won the 1910 Grand Prix was 120 by the maker's rating and 63 by the A. L. A. M.

Deprecates Crowned Roads

EDITOR THE AUTOMOBILE:

[2,871]—In your paper for September 28, under the heading "Good Roads," I could not but notice the favor shown for crowned roads for the automobile. In Los Angeles they are doing their best to build good roads of which our people are justly proud. But the crowned roads are not good nor safe for automobiles; any road that is too much crowned for horses is too much so for automobiles, and that is not all. In California we are compelled to keep to the right of the center of the road and as near to the gutter as practicable. Consequently the right side of the machine, being several inches lower than the opposite side, must support a greater amount of weight. The result is that the tires on the side next to the gutter give out much more quickly than the tires on the opposite side of the machine.

Many cars are not absolutely greaseproof, and the right side of the machine running on the lower incline causes the grease that works out from the differential to find the lower level, thereby interfering with the brake and in some cases dropping out and finding its resting place on the tire, while on the opposite side of the machine the brake shows no sign of superfluous

grease. The springs also show wear, having a constant pressure to the right. The crowned roads are costing the automobile owners thousands of dollars every year. Many of your readers may not have given the subject much thought, but they must have wondered why the tires gave out first on the right side of the machine.

T. J. BOSSERT.

Hollywood, Cal.

Likes the Slide Valve

Editor THE AUTOMOBILE:

[2,872]—Will you please tell me if there is any patent extant on a working model of a slide valve gasoline motor of the four-cycle type? If there is what objection is there to the adoption of this type of valve?

I am working on a slide valve engine model and to all appearances it is a far superior piece of mechanism to the common poppet valve. I would be very glad to have your opinion on this scheme.

CHAS. F. WHYTE.

Saxonville, Mass.

Types of slide valves have been tried in connection with the gasoline motor, but none as yet has been proven capable of working under the conditions which obtain in automobile practice. The sleeve valve which has gained favor lately is the nearest approach to it which has been put into practical use. There is doubtless a field for very profitable work in connection with this part of the gas engine and the adoption of the slide valve is well within the realms of possibility.

Removing Broken Screws

Editor THE AUTOMOBILE:

[2,873]—The screws which hold the clutch box together on my car are broken off and I cannot remove them by means of a screw driver. The clutch is of the multiple-disc type and the box is held together by means of two narrow flanges which are held by screws which pass through them. Would you kindly tell me how I may remove them and replace them with new ones?

M. F. B.

Cornwall, N. Y.

The remedy which may best be applied to a case of this nature, where the screws are apt to be very small, is to take a breast drill and take the screws out altogether by drilling. This is done in the manner shown in Fig. 3. Small bolts may then be fitted in place of screws or, if it is so desired, the new holes can be tapped and other screws fitted.

The drill employed should be about the same size as the screws, so that more material than is necessary will not be cut away.

Does No Harm

Editor THE AUTOMOBILE:

[2,874]—Please advise in your answers to subscribers if it will do any harm to either

the storage battery or magneto to have both on at one time. My car is fitted with a high-tension magneto, separately connected with one set of plugs and a storage battery connected with another set of plugs.

G. H. SMITH.

Roulette, Pa.

It will do no harm to run both sets of spark plugs at the same time if you so desire.

Points of Wear

Editor THE AUTOMOBILE:

[2,875]—Would you kindly tell me the points that are liable to wear in the cam and follower mechanism?

(2) Is a cam shaft which is oiled by the splash system apt to be given an entirely adequate amount of oil, or should there be some independent means of supplying oil to the bearings of this shaft?

Newark, N. J.

A. R. L.

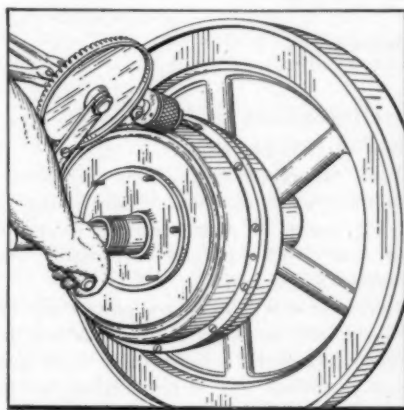


Fig. 3—Method of drilling holes through broken screws in flange

(1) The wear will be found to occur on the cams at the point which first strikes the follower. This point is shown to be just about to be reached in Fig. 4. The roller follower will often wear, as will the push rod bushing, end of the push rod, pivot bushing and the top of the push rod. Wear in the push rod can generally be taken up by special means generally fitted to make these adjustments.

(2) A cam shaft that is lubricated by splash will receive plenty of oil to thoroughly lubricate it.

Idea Arouses Interest

Editor THE AUTOMOBILE:

[2,876]—In your issue of Sept. 7, Robt. W. Hughs, in describing the "eventual" car, mentions a recently patented gear-shifting device. (See page 397.)

May I ask you to describe and illustrate this if of sufficient importance. I feel sure many car owners would be interested.

D. B. GREENE.

Neosho, Wis.

[We suggest that you communicate direct with Mr. Hughs, whose address is Atlanta, Ga.—Ed.]

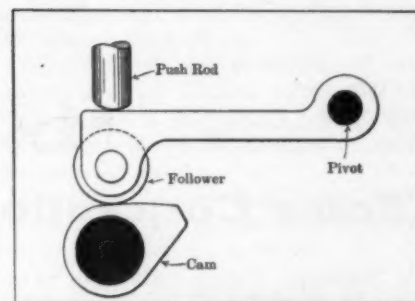


Fig. 4—Showing the wearing points of the valve lifter mechanism

Also Likes Idea

Editor THE AUTOMOBILE:

[2,877]—I should like you to give me further particulars through your columns as to the patent which has been taken out to eliminate the change gear's lever. According to one of the correspondents who described his ideal 1912 car such a patent has been taken out and when it is in general use it will eliminate the need of this part, as the change of gear will be entirely automatic. I have not seen this contrivance referred to except in this article.

F. D. MARTIN.

New York City.

Good Advice

Editor THE AUTOMOBILE:

[2,878]—Several of my friends who drive cars have advised me to release the clutch on rounding a curve, saying that in doing so I will save tire expense. Is this true? If it is, could you tell me the reasons?

CHAS. CAMDEN.

Trenton, N. J.

The advice that your friends have given you is good. In slipping the clutch you will not only decrease the tendency of the car to skid, thus partly eliminating a cause of tire depreciation, but the lateral strains involved when the motor is driving the car when turning a corner will also be dispensed with. There are many little opportunities which are afforded to drivers to lighten their tire and other expenses by the use of a little foresight and care and this is one of them.

Wants Views of Others.

Editor THE AUTOMOBILE:

[2,879]—I have noticed a great deal of discussion lately among those who are interested in automobiling concerning the merits of the use of carbonic acid gas in tires. Many people state that it will leak from the tire at an alarming rate and others assert that this is much exaggerated although true to a slight degree. I would like to know some of your readers' experiences in this matter:

J. E. S.

New York City.

Views of our readers on this subject would no doubt be appreciated by many who are interested in this matter.—Editor.

My 1912 Automobile

Some Conceptions of What the Ideal Car Should Be

A Brooklynite's Ideal

Editor THE AUTOMOBILE:

The ideal car should have a unit power plant. The motor should have four cylinders cast in pairs, having a bore of $4\frac{3}{4}$ inches and a stroke of $6\frac{1}{2}$ inches. The valves should be about $2\frac{3}{4}$ inches in diameter. The motor should be of the T-head type, with the valves enclosed. The valves should have adjustable lifts. There should be a five-bearing crank and cam shaft, the bearings being of bronze with babbitt lining.

The lubrication should be by the automatic splash system, the supply being maintained by a mechanical force-feed lubricator with sight feed on dash.

Ignition should be by Bosch magneto and storage batteries. There should be two sets of spark plugs over valves with an arrangement for cutting off cylinders.

The water should be cooled by a square-tubed honeycomb radiator and a four-bladed fan and circulated by a gear-driven pump.

The clutch should be a multiple disc type running in oil. It should have about sixty plates. There should be a four-speed transmission mounted on ball bearings. Direct speed should be on third.

The car should be shaft-driven with a Timken-Detroit rear axle. Roller bearings should be used with it. The front axle should be of the B. and L. Caster type.

Steering should be by an irreversible worm and sector gear. The steering wheel should be 18 inches in diameter with a corrugated rim.

The frame should be of the best pressed steel. Semi-elliptic springs in front and $\frac{3}{4}$ in rear. Shock-absorbers should be used.

A 30-gallon gasoline tank should be carried in the rear. The gas should be delivered to a Rayfield carburetor under pressure.

The tires should be guaranteed and should be $36 \times 4\frac{1}{2}$ inches. Dorian rims should be used. The wheel base should be 124 inches.

There should be four large brakes each 17 inches in diameter and with easy adjustments.

The body should be of torpedo design, seating five people. The driver should be able to get in from right side. There should not be any door on left side in the rear. The seats should be very low and slanted a trifle.

The equipment should include a caravan

top of light color, an automatic windshield built for the car, and the Gray & Davis lighting system. The Warner speedometer should be used, and with the clock built so as to be flush with the dash. Tires should be carried under rear seat and under front seat should be drawers for tools. There should be trunks running the entire length of the running boards. A compressed air self-starter, Klaxon combination horn, tools, foot rails, jack, etc., should also be included in the equipment.

This car should weigh about 3,200 pounds, and should cost about \$3,000.

J. D. CRARY, JR.

Brooklyn, N. Y.

Illustrates Rotary Sleeve

Editor THE AUTOMOBILE:

While others are telling how they would have their ideal car built, I am going to ask for space in your valuable paper to show how I would build the engine, the all-important part of the car.

Of course it will not have poppet valves, as that would not be the latest fashion, so I have selected the rotary sleeve valve and I trust my ideas will be made plain by the accompanying sketches (Figs. 1 and 2).

The sleeve valve is hollow and has

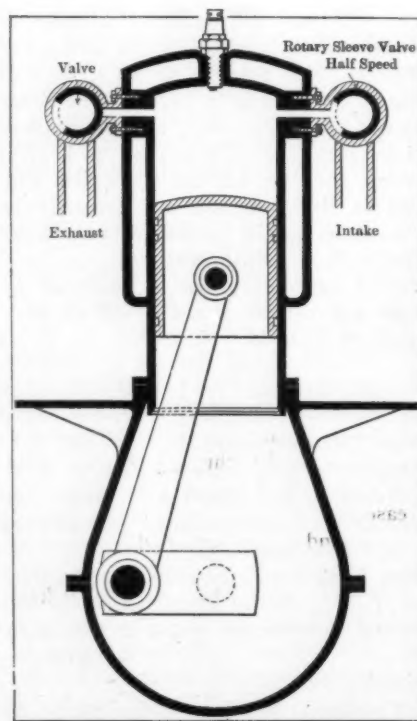


Fig. 1—Section through cylinder with rotary valve

parts which uncover portholes in the cylinder wall at the proper time to admit the gas and let out the exhaust; the sleeve also has a number of small holes clustered together at the place where it is joined by the intake and exhaust pipes to admit the gas in intake sleeve and to admit the exhaust gases from the exhaust sleeve into exhaust pipe.

The sleeve valves are operated by silent chain and sprocket or gears direct from crank shaft at one-half the speed of crank shaft. They are taper fit within the casings, run on ball and thrust bearings and are adjustable so that a proper fit can always be made, allowing for heat influences and wear.

This sleeve valve is adaptable to any number of cylinders, is easy to cast and machine; the valve parts being made separate and complete. Cylinders are easy to cast and all the parts are right out where you can get at them and put your hands on them. The pistons can go up in cylinders far enough to cover ports when explosion takes place to relieve shock against sleeve valves. The engine is easy to lubricate, easy to repair and will never leak or need grinding. Exhaust can be water-jacketed if necessary. It does away with a great many parts, complication and noise.

H. LEE CLARK.

Canton, Pa.

What a Canadian Wants

Editor THE AUTOMOBILE:

The car should have a four-cylinder T-head motor with a 5-inch bore and a 6-inch stroke, the cylinders being cast in pairs. The valves should be on opposite side of the motor, be interchangeable, and have a diameter of $2\frac{3}{4}$ inches and enclosed in dust-proof covers.

The ignition should be furnished from a magneto and storage battery with a double distributor, firing two sets of plugs simultaneously on either battery or magneto.

The carburetor should be of the float-feed automatic type with 2-inch mixing chamber, hot water jacketed, a needle valve adjustment provided so as to be controlled from the dash. The clutch should be of the multiple disc type running in oil bath.

The transmission should be of the selective type giving four speeds forward and one reverse, direct drive being on fourth speed. The engine, clutch and gears should comprise a single unit power plant, and should be suspended from three points in the main frame.

It would be desirable to equip the car with a 124-inch wheelbase. The front springs should be 40 inches long and of the semi-elliptic type, and the rear springs 48 inches long of the three-quarter scroll elliptic type.

Tires of 38 x 4½ inches in size should be supplied, fitted to demountable rims, on both front and rear wheels. I prefer a car with right-hand drive, with the gear-shifting lever on the inside of the fore-door. There should be two pedals, the left to disengage the clutch and operate the service brake, the right to take the place of the emergency brake lever; both brakes should operate on the rear hubs. This arrangement would be more convenient and safer, as there would be no need for reaching for emergency brake lever.

The body of the car should be of aluminum where possible and of the straight-line fore-door five-passenger phaeton type, with low-set seats, having high backs and deep upholstery. This type is very comfortable combined with the long wheel base, large wheels and easy-riding springs.

The engine with large valves, ample size carbureter, and positive ignition system would give the car great power.

The equipment should include mohair top, windshield, two additional demountable rims, self-starter, speedometer.

Such a car as I have outlined should sell for about \$3,500.

RUPERT S. HAMLIN.

Ottawa, Canada.

Wants Worm Drive

Editor THE AUTOMOBILE:

My ideal automobile is as follows: The wheelbase should be 115 inches, with wheels capable of taking a 36x4-inch tire and with Q. D. rims. The tire pump should be a part of the engine apparatus.

My choice of a motor would be one with rotary or sleeve valves; it would have four cylinders of 4¾-inch bore and 5-inch stroke. The cylinders should be cast in pairs, giving a three-bearing crankshaft. The crankshaft bearings should be of the plain type.

The clutch should be of the multiple-disc type and should be used in connection with a gearset of three speeds: 12, 7 and 4 to 1. The emergency brake should first disengage the clutch and then take up on the drums. The gearset should be located near the clutch and flywheel.

The propeller shaft should be encased in a torque tube and have a worm and gear drive to the rear axle. This would allow the propeller shaft to be aligned with the crankshaft.

The engine base should have hand holes and cover plates for easy examination of the connecting rod bearings, etc. The base should also contain a circulating splash oiling system.

I would specify a magneto for ignition while running and a dry battery set for use

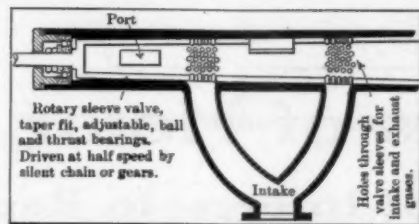


Fig. 2—View of the rotary valve suggested by a reader

in starting. The engine should be self-starting and fitted to the body best suited to the requirements of the owner. This outfit should cost from \$1,200 to \$1,400.

G. P. MCGRAW.

Pierson, Iowa.

Requires Heavy Engine

Editor THE AUTOMOBILE:

The engine should have four cylinders of the L-type cast in pairs, they should be provided with removable cover plates over the water jackets to allow of cleaning. The motor should have a bore of 5 1-2 inches and a stroke of 7 1-2 inches with 2 3-4 inch valves.

The valves should be enclosed so as to exclude grit. This construction will give a full 48.4 horsepower A. L. A. M. and would doubtless develop 60 horsepower on the brake test.

I would specify an offset crank case split in half with side opposite camshaft removable to allow access to and the removal of the crankshaft, connecting rods or pistons whenever necessary without having to take down the engine.

The lubrication should be by positive force feed, by a gear-driven pump to all bearings and splash to connecting rods and pistons, oil contained in tank at side of engine with sight feed on dash.

Ignition should be by two independent Bosch magnetos, with two sets of Bosch spark plugs over valves.

The cooling system should consist of honeycomb radiator with gear-driven fan and water pump.

Selective type of transmission should be used with four speeds forward and reverse, running on large ball bearings with direct drive on third speed and geared 2 1-2 to 1 on direct.

The large diameter multiple disc clutch should be mounted on ball-bearing running in oil with six tension springs equidistant apart to allow taking up of wear.

Drive should be through shaft fitted with two universal joints, and be packed in grease to differential with a torsion rod alongside, and from differential to rear wheels through live axle. Both differential and live axle ought to run on Timken roller bearings.

The front axle should be of I-beam pressed steel, and a full-floating rear axle ought to be installed.

The exhaust should have two systems consisting of an ordinary muffler, and a

set of pipes with a cut-out coming through the side of the hood.

Wheels should be 38 inches, of wire construction on Timken roller bearings. These should be shod with 5 1-2-inch tires. All wheels should be fitted with quick-demountable rims.

There should be four large brakes (about 17 x 3 inches) on the rear wheels, two internal, and two external.

The wheelbase should be about 135 inches.

Semi-elliptic springs in front and three-quarter elliptic in rear should be used together with shock-absorbers.

Steering should be by worm-and-sector gear, irreversible type with 19-inch wheel on a 2-inch post.

The equipment should consist of full torpedo type body seating two persons. A 40-gallon gas tank should be mounted at rear of seat with a large opening for filling. A top, Warner Autometer Clock and two extra rims with tires should be carried on the car.

A combination Klaxon horn, engine driven tire pump, jack, complete set of tools, and a self-starter should be installed on the car.

The car should be built of the very best material obtainable. The body should be built low with seats on the floor and tilted, and upholstered with smooth leather. Such a car would cost \$4,500 or thereabouts.

A. S. P. O. R. T.

German Valley, N. J.

Raises New Point

Editor THE AUTOMOBILE:

In my opinion the matter of price in buying a car clashes with the ideal car that the purchaser would specify in the majority of cases, for the simple reason that in buying a cheap or medium-priced car the one who is buying the car generally wishes he could afford to buy a dearer and more refined product.

When stating this opinion I do not mean to say by any means that the cheaper cars are not good; but in making any purchase, whether it be automobile or roller skates, one expects more either in beauty of finish or in mechanical refinements when a higher price is paid than otherwise. The lower and medium-priced cars are far in the majority and it is perfectly natural that it should be so when it is considered that the wealthy class are in the minority and that the majority of automobile owners are people who are in merely what is known as fairly comfortable circumstances.

For the reasons that I have given I cannot agree with INTERESTED in his communication in the issue of October 5, when he states that cheapness is a factor in the ideal car.

LOUIS BOURGOTTE.

New York City.

Little Bits of Motor Wisdom

Pertinent Pointers of Interest to Repairman and Driver

CARE OF TIRES ON THE ROAD— Care of the tires should not be confined to the time when the car is stationary in the garage before starting on a trip, but should also be a matter which will take the attention of the driver while he is on the road; especially if the trip be one of length. An inspection of the tires is, generally made by the driver before he starts on a trip. This inspection should not be confined merely to the search for cuts, but also for spots which give evidence of an impending blow-out. These are generally determined by a small bubble-like formation on the surface of the casing.

After having searched for cracks and cuts, these bubbles should be made an object in the search, as they are, if anything, more dangerous than are the cuts, for the cuts will allow water to soak through the casing and cause the fabric to rot, which will be a slow process. A bubble will indicate, on the other hand, that the spot at which it occurs is so much weaker than the rest of the tire that it cannot withstand the pressure of the air within the inner tube sufficiently to hold its proper shape. If these weaknesses are discovered within the shop before the car starts upon the trip it would naturally be the duty of the careful driver, who abhors roadside accidents, to restore the casing to its original strength by cutting and vulcanizing. It will often be the case that the driver is not sufficiently acquainted with the process of vulcanizing to attempt the work himself, so that it will naturally have to be handed over to a repair shop, the work of repairing a blister on the casing being a much more complicated undertaking than the repair of a simple cut.

The inspection of the tire in the shop will disclose the weaknesses which have already progressed far enough to evidence themselves, but the others which are not in

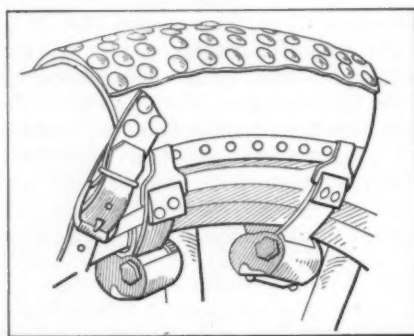


Fig. 1—Showing a tire boot or gaiter

so advanced a state will remain hidden; it is these cases and the others which are the result of accident which make the occasional roadside inspection a necessity.

Vulcanizing cannot, of course, be well carried on while the car is standing out on some country road, for the simple reason that the necessities are not as a rule at hand, so that other means will have to be found to either restore the tire to its strength temporarily or to eliminate the chances of a blow-out in another way. The spare rim is the medium through which many meet the exigencies of the occasion, while others, who have, perhaps, used their spare rim, employ the tire boots shown in Fig. 1.

These tire boots are very easily attached and will strengthen the shoe sufficiently to hold it against the impending blow-out until a place can be reached where the permanent repair may be made. In attaching the tire boot it should be very firmly strapped to the tire and then also fastened so that it will be impossible for it to slide longitudinally. There are generally straps fitted to the boot for all these purposes, and the only thing remaining for the driver to do is to tighten them sufficiently. If the boots are firmly fitted their usefulness is in-

creased immeasurably and the possibilities of accidents in spite of the boots are greatly decreased.

MAKING ELECTRIC CONNECTIONS—It will often be found that a poor connection exists when the ignition of the motor is faulty. In making the new connection it should not be done hurriedly even if this minor repair is taking place somewhere along the road. It is easy to forget that a poor connection was made and the trouble will be sure to evidence itself again in a most uncomfortable manner. If the driver is fortunate enough to have detected the trouble without a long search he should be willing to sacrifice the small amount of time necessary to make the repair as it should be made.

The first three steps are depicted in Fig. 2. A pocket knife is used for the purpose of cutting off the outer insulation for about $1\frac{1}{4}$ inches along each piece of wire to be connected; the remaining insulation is then burnt off by holding a match beneath the wire. After the insulation has been thoroughly removed the knife is again called into action and the wire scraped so that a good connection will not be hindered by dirty wire. The wire will probably be of several strands, and in this case should be twisted between the thumb and forefinger, in the same manner as a mustache is twirled, so that the various strands will not separate from each other during the time that the connection is being made.

The ends of the wires are then laid together in the manner depicted at C in Fig. 2 and twisted over each other as shown. When they are twisted so that the length of the wires in contact is about an inch, the connections should be soldered as illustrated at E in Fig. 3. The joint is then ready to be bound with tape as shown at F. A careful joint such as this will

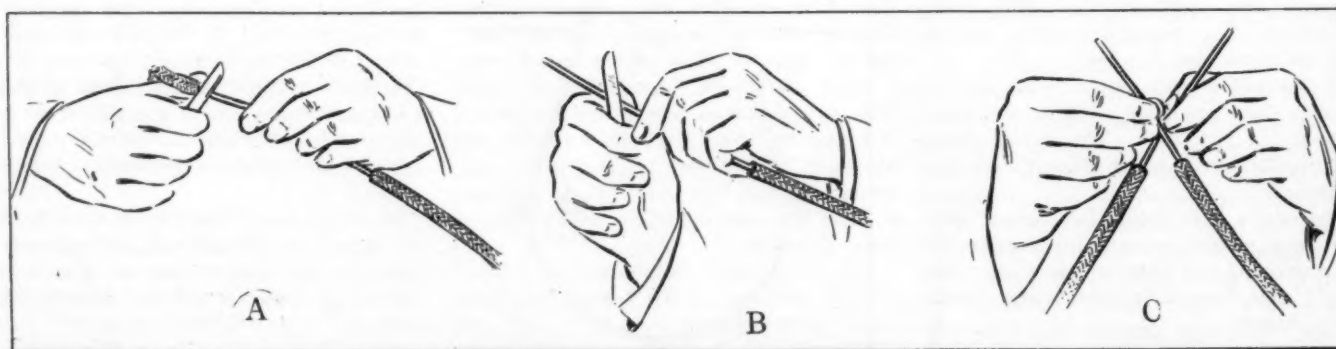


Fig. 2—Illustrating the first three operations in making a careful electric connection

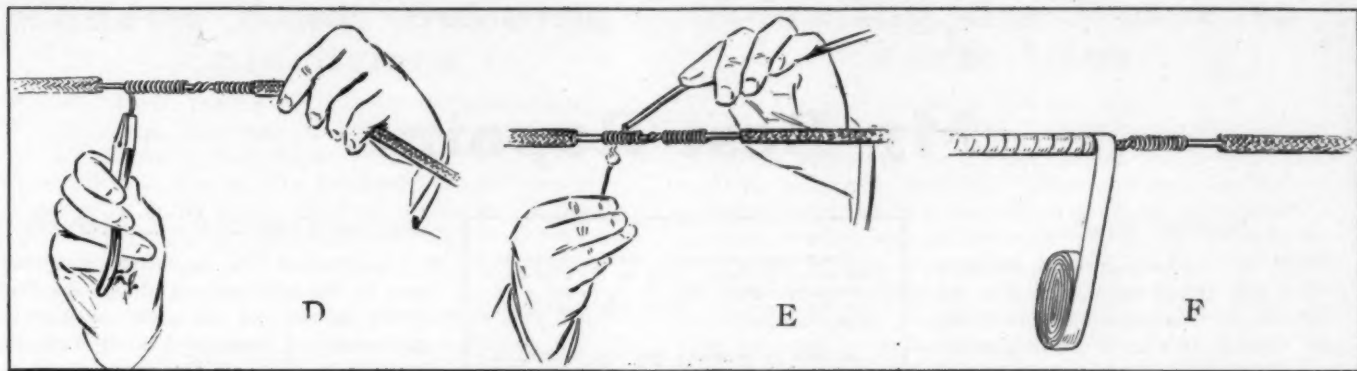


Fig. 3—Depicting the last three operations in making a connection in the wiring

not require much more time than when made carelessly. The difficulties rising from faulty connections are many and are often very hard to detect, especially if they are at the binding posts. The ordinary manner of connecting the wires at the binding posts is merely to form a sort of hook with the end of the wire, place it about the post and then screw the knurled nut down upon it. After a period of vibration the nut will often become loose and since the hook at the end of the wire has nothing left to support it it will leave the binding post and cut off the current. In most cases a casual inspection of the wiring will disclose what has happened, but in other cases the vibrations of the car bring the wire into intermittent contact with the other member of the circuit and the driver is at his wits' end to determine the seat of trouble.

INSPECT UNIVERSAL JOINTS—The universal joints are often neglected because they are not located where they are a constant reminder to the proprietor of the car, but it is very necessary, if the car is to be maintained in the best possible condition, that they have an occasional inspection. A good rule in the case of a car which is used moderately is to make this a monthly task. It is not necessary always to thoroughly clean these bearings every month, but they should at least have the supply of oil renewed. If this is done every month and the old oil cleaned out by flushing with kerosene before the new oil is put in they should never give any trouble.

There is generally a plug in the housing which can be removed for the purpose of flushing and refilling. When the plug is removed the motor should be turned over slowly while the kerosene is in the casing so that it will be thoroughly flushed out. Cotton waste should not be permitted within the casing as it will be sure to become caught in some irregularity of the metal and be twined about the bearing after the shaft is in motion.

The grease is generally inserted into the housings by means of a grease gun in the case of the rear universal joint, where graphite grease should be used. The front universal joint casing may be filled with

transmission oil, or, when the weather is cold, cylinder oil may be used to good advantage. In some of the front universal joint casings a level cock is used and when this fitting is employed the oil should be put in up to the level of the cock. When filling, the cock is left open and oil is poured in until there is a flow from this cock, whereupon the cock is shut off and the casing cover replaced and fitted tightly so that the oil which is thrown about by the whirling shafts will not leak from the casing. In most cases the opening for the insertion of grease is merely sealed by a plug.

A very good practice is to lubricate and clean the wheel bearings, differential and gearset at the same time that the two universal joints are attended to, so that the whole work may be done at once with a saving of labor and material.

EXTRACTING A PIN—There are numerous clever kinks which suggest themselves to those who are mechanically inclined and remarkable cases of ingenuity are frequently discovered among those who have had but little practical experience in the shop. On the other hand, however, little problems will present themselves which, it would seem, should not present the slightest difficulty to the merest child in the mechanical arts. A riveted pin will sometimes defy the misdirected efforts to remove it for a long time and the idea of using the vise to remove it may not occur to the me-

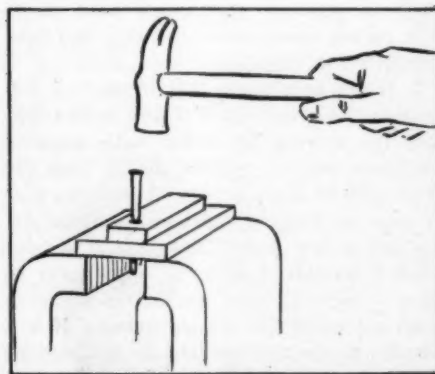


Fig. 4—Method of driving out riveted pin

chanic until he has tried several other ineffectual schemes. The piece may be laid across the jaws of the vise as shown in Fig. 4 and be very easily hammered out by the aid of a punch. In case the end of the pin is riveted over, the end will have to be filed as a rule, although when riveted lightly the burred edge will oppose little resistance to a few light blows of the hammer.

In case the parts to be disassembled are delicate a block of wood should be inserted between each jaw and the metal so that no damage can be given by the edge of the vise. The punch in this case should be carefully laid upon the pin before being hammered so that it will not be liable to slip off and inflict a gash in the part.

RAPID DEMAGNETIZATION REQUIRED—The core of the primary winding must be of such material that it permits itself to be readily demagnetized when the current passing through the solenoid is cut off. Soft iron possesses the quality of rapid demagnetization to a marked degree and is for that reason universally employed. The diameter of the coil is generally about $\frac{3}{4}$ inch and about this there is a winding of some sort of insulating material which separates it from the primary winding.

It has been discovered that the rapidity of demagnetization will be markedly increased if the core is not made of a solid bar of iron but consists of a bundle of soft iron wires about 6 or 7 inches long. This is the customary method of manufacturing the core of the primary coils for use in automobile work where a rapid action of the trembler is required.

CALCULATING CLEARANCE IN PER CENT.—
Let Volume of clearance = 13.73 cu. in.
Volume of clearance piston displacement = 44.51.

$$\% \text{ clearance} = \frac{13.73}{13.73 + 44.51} = 23.6$$

This idea will, of course, obtain for any size of motor. All that has to be done is to substitute the right values for those given and then work to the formula.

My Best Repair

Broken Studs

ONCE had the misfortune to break a stud that united the manifold to the cylinders. It snapped off close to the cylinder casting, so that it was impossible to file a flat on it or turn it out with a pair of pliers. There was no repairer to whom I could go to have it fixed for several miles around and the noise of the exhaust leaking through was very disconcerting.

I stopped at a village blacksmith and obtained the loan of a drill, which, to say the least, was very primitive. None of the drills that he had would go anywhere near the stud, and I did not wish to spoil the thread, as I had no means of cutting another and did not know the thickness of the water jacket.

Consequently I persuaded him to make me a fine drill out of a piece of steel, which I filed down so as to obtain a cutting edge.

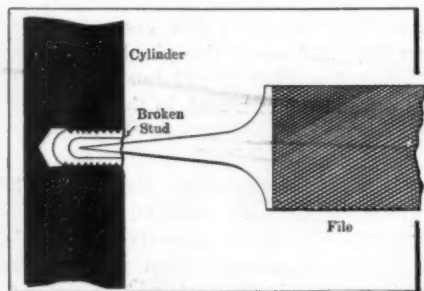


Fig. 1—Method of extracting a broken stud holding the manifold to the cylinders by drilling a hole and using a file

With the aid of the drill I made a small hole in the stud and tapped the tag end of a file in the hole with a hammer, in the manner shown in the illustration, Fig. 1.

Then it was simplicity itself to remove the part. I found it necessary to grind the tag end of the file slightly so as to obtain a good purchase in the hole. Since then I always carry a small drill in my kit and have found it very useful on many occasions. An example of this was given once when I broke a split pin in a shaft over which passed a castellated nut, and after fiddling with pin punches for some time the drill removed the pin in a second.

Montclair, N. J.

R. F. C.

Cracked Intake Manifold

For some unaccountable reason the aluminum intake manifold of my motor cracked and though the motor did not stop altogether it lost a lot of power and caused me considerable annoyance. I traced every wire in the ignition system, although I was positive the plugs fired properly, took the carburetor to pieces without disturbing the

Temporary automobile repairs made by the driver or owner while on the road and permanent repairs made in the garage after the run is over, are interesting to all automobile owners.

It may be a spring leaf has broken; a shackle bolt or strap may break; a steering tie rod is bent; the car skids into a curb and bends a steering arm or the starting crank; a throttle or magneto connection breaks owing to vibration; a radiator leak is started by a stone or some other means; a leak in the gasoline tank is discovered; there is a small hole in the gasoline feed line; a brake facing may burn out; a brake connection breaks; a front axle gets slightly sprung; a clutch starts slipping, or any one of a thousand things may happen.

Every automobile owner is interested in knowing how repairs have been made, how long it took to make them, how much they cost, and by whom they were made.

We want you to write in simple language in a letter what repair of this nature you have had to make, how you made it, how long it took you and how much it cost.

You can make with your lead pencil one or two rough sketches indicating the broken or damaged part and showing how the repair was made.

The experience of each reader is interesting to every other reader. Analyze your past experiences and send in one or two of them.

Give your name and address, legibly written. If you do not want your name to appear, make use of a nomme de plume.

Editor THE AUTOMOBILE.

manifold and looked at all the valves.

Thinking that the connection of the manifold to the cylinders might be faulty, the gaskets having given out, I took the manifold off and found a decided crack on the side near the motor and consequently out of sight when in the car. Here was my trouble, as by the process of elimination it could be nothing else. I obtained some putty at a hardware store and with the aid of a little insulation tape I bound the fracture around so as to prevent the air from being sucked into the manifold. I cannot describe the difference in the car's running. From sluggish it became vivacious in starting, and would hold on to hills on top speed where before I had been compelled to change.

It is my impression that instead of discarding the manifold as faulty at the factory the makers, or rather some slipshod workman, painted a little shellac over the crack and let it go at that. I took the pipe as soon as I could conveniently spare the car for a few hours and had it welded while I waited. I took the opportunity to have a pair of webs welded on so as to form a support for the carburetor. It is a wonder to me that makers do not support the carburetor by a stay from the base chamber.

J. D. R.

OIL CITY, PA.

Leather Contacts — Clutch Slips

The troubles that motorists sometimes have on the road are not always the fault of the maker, but are sometimes due to carelessness of his employees. My case was of the latter variety. The clutch on my car is of the leather cone type and I do not want anything better. I took my new purchase over with pride and proceeded to drive it home, which was about 150 miles from New York. Everything went nicely for 70 or 80 miles when I noticed that she was not pulling so well on hills and the engine was slightly inclined to race.

I put it down to a new leather that had not worked in, so I purchased some fuller's earth at a drug store, and sprinkled a little on the leather. Matters improved somewhat for a few miles, but the trouble again manifested itself. I then washed it with some kerosene to expand the leather and

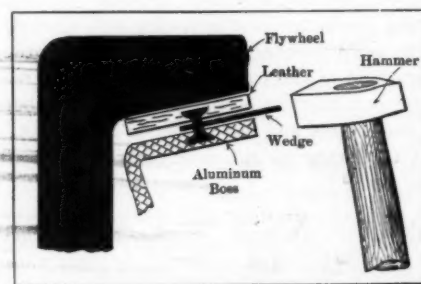


Fig. 3—Forcing a wedge between the aluminum boss and the leather of the clutch to expand the latter, and prevent slipping

afterward with a little gasoline to wash off any dirt that may have been there.

Things had got to that pitch that it was almost impossible to get along at all. I first thought that the floorboards prevented the pedal from coming back far enough, but this was not so.

I then came to the conclusion that it was either a matter of taking the clutch down or faking it to get home. I took the latter idea as being the quickest. I obtained a pair of snips and a piece of tin and cut some short pieces and drove them between the aluminum boss and the leather between the rivets with a hammer in the manner shown in the sketch, Fig. 3. It worked admirably and I got home without any further trouble. I found that the bolts securing the flywheel to the crankshaft boss had been left too long and after the leather had settled, so to speak, these bolts prevented the metal boss of the clutch from sliding in far enough to allow the leather to contact with the flywheel. This I remedied by reversing the bolts, which I found was the correct way for them to be.

KALAMAZOO, MICH.

H. P. M.

Modern Road Building Enterprises

FLINT, MICH., Oct. 14—The county road commissioners of this county have been allowed an appropriation which will amount to about \$43,500 to be spent next year.

RICHMOND, VA., Oct. 14—The Peninsular Automobile Association has raised \$5,000 toward the improvement of the road between Newport News and Richmond, and Richmond has raised \$2,500. A larger sum will no doubt be raised and the work continued.

BALTIMORE, MD., Oct. 16—All objections have been removed and the boulevard between Annapolis and Baltimore will now be constructed as rapidly as the work can be pushed through.

OKLAHOMA CITY, OKLA., Oct. 12—About the last week in November there will be a vote taken on the \$1,250,000 in bonds to construct the first group of hard surface roads in the State. The plans call for 155 miles of asphalt and 21 miles of crushed stone.

DETROIT, MICH., Oct. 14—A good roads meeting will be held in Monroe on October 17, for the purpose of furthering the original route of the Detroit-Toledo highway. There are rumors that it is proposed to make use of highways which have already been constructed in neighboring towns and thus escape Monroe altogether.

COLUMBUS, O., Oct. 14—At the annual meeting of the Ohio Good Roads Federation it was decided to inaugurate a vigorous campaign to secure a constitutional amendment permitting the issue of bonds for the improvement and construction of State roads.

PHILADELPHIA, PA., Oct. 13—At the recent annual meeting of the Quaker City Motor Club, nominations of officers and members of the board of governors were made for the ensuing year. The nominations created a lively interest as the list of nominees outnumbered the list of vacant offices about five to one.

TOLEDO, O., Oct. 14—Splendid progress is being made by the promoters of the new automobile club for owners of machines in Toledo. It is now certain that a full-fledged organization will be in existence in a very short time.

Adapting the Motor to Farm Uses

(Continued from page 675)

manlike fashion and turning under the stubble and the fertilizers or manure spread on the surface. While the driving wheel tracks in the furrow which the disk is just then forming the right front wheel tracks in the furrow previously made, and this provision, bringing both wheels in the hollow, with the crest between them, prevents the skidding which might otherwise result from the oblique pressure of the disk. The driving wheel has two concentric rims of different widths, so disposed that the wider and smaller rim bears against the untouched soil while the larger and narrower rim follows the bottom of the furrow. On the road only the latter is in action. The small and broad rim is provided with traction ribs which may be either fixed or subject to adjustment.

In the Linard-Hubert motor plough Fig. 4 a *socs percutants* ("with shares that strike") the motor chassis is equipped with a four-cylinder, 20-horsepower motor turning at 400 revolutions per minute, and the plough chassis consists of a simple frame which is mounted at the rear of the motor chassis and from which the plough shares are suspended. By a special mechanism the motor imparts intermittent impulsion into the soil to the shares, actuating them successively, and as the velocity of the impulsions is greatly superior to that of the vehicle's advancement over the soil, the traction of the vehicle is influenced by the work only for brief periods, and the work can go on even if the ground adhesion is imperfect. When the shares are dismounted, the frame of this cultivator plough may be used for many other purposes.—From *Bulletin Official*, August.

GRAND RAPIDS, WIS., Oct. 14—The Grand Rapids Commercial Club has decided to abandon the proposition of bringing the Crowe Motor Car Company, of Detroit, to this city.

SYRACUSE, N. Y., Oct. 14—As the result of a special recruiting campaign the membership of the Automobile Club of Syracuse has increased to 850.

Calendar of Coming Events

Shows

- Oct. 7-14.....Chicago, Ill., Show of Chicago Automobile Trade Association.
 - Jan. 2-11.....New York City, Hotel Astor, Importers' Salon.
 - Jan. 6-13.....New York City, Madison Square Garden, Twelfth Annual Show, Pleasure Car Division, Automobile Board of Trade.
 - Jan. 6-20.....New York City, Madison Square Garden, Annual Show, Motor and Accessory Manufacturers.
 - Jan. 10-17.....New York City, Grand Central Palace, Twelfth Annual Show, National Association of Automobile Manufacturers; also Motor and Accessory Manufacturers.
 - Jan. 15-20.....New York City, Madison Square Garden, Twelfth Annual Show, Commercial Division, Automobile Board of Trade.
 - Jan. 22-28.....Providence, R. I., Providence State Armory, Rhode Island Licensed Automobile Dealers' Association, Automobile and Accessories Show.
 - Feb. 17-24.....Minneapolis, Minn., National Guard Armory and Coliseum, Annual Automobile Show, Minneapolis Automobile Show Association.
 - Jan. 27-Feb. 10....Chicago Coliseum, Eleventh Annual Automobile Show under the auspices of the National Association of Automobile Manufacturers. Pleasure cars, first week. Commercial vehicles, second week.
 - Feb. 14-17.....Grand Rapids, Mich., Third Annual Show.
 - Feb. 19-24.....Hartford, Conn., Annual Show, Automobile Club of Hartford, State Armory.
 - Week Feb. 22.....Cincinnati, O., Annual Show, Cincinnati Automobile Dealers' Association.
 - March 2-9.....Boston, Mass., Tenth Annual Show, Boston Automobile Dealers' Association, Inc.
- Meetings, Etc.**
- Nov. 20-24.....Richmond, Va., First American Road Congress, under auspices of American Association for Highway Improvement.
 - Nov. 22.....Road Users' Day, under direction of Touring Club of America.

- Jan. 18-20.....New York City, Annual Meeting of the Society of Automobile Engineers.
- Race Meets, Hill-Climbs, Etc.**
- Oct. 9-13.....Denver, Colo., Reliability Run, Denver Motor Club.
- Oct. 11-18.....San Francisco, Cal., Reliability Run, Good Roads Assn. of Northern California.
- Oct. 13-14.....Peoria, Ill., Track Races, Peoria National Implement and Vehicle Show.
- Oct. 14.....Santa Monica, Cal., Road Races.
- Oct. 14 (to 26).....New York City, Start of the Annual Glidden Tour, en route for Jacksonville, Fla.
- Oct. 30.....Minneapolis, Minn., Hill Climb.
- Oct. 20-21.....Sioux City, Iowa, Track Races, Sioux City Automobile Club.
- Oct. 21.....Atlanta, Ga., Track Races.
- Oct. 21.....White Plains, N. Y., Track Races, Westchester Driving Club.
- Oct. 21-22.....Los Angeles, Cal., Track Races, Motordrome.
- Oct. 27-Nov. 3.....Chicago, Ill., Thousand-Mile Reliability Run, Chicago Motor Club.
- Oct. 28.....Newark, N. J., Reliability Run, Newark Motor Club.
- Oct. 30.....Harrisburg, Pa., Economy Run, Motor Club of Harrisburg.
- Oct. 31.....Shreveport, La., Track Races, Shreveport Automobile Club.
- Nov. 2-4.....Philadelphia Reliability Run, Quaker City Motor Club.
- Nov. 3-4.....Columbia, S. C., Track Races, Automobile Club of Columbia.
- Nov. 4-6.....Los Angeles-Phoenix Road Race, Maricopa Auto Club.
- Nov. 9.....Phoenix, Ariz., Track Races, Maricopa Automobile Club.
- Nov. 9, 10, 12.....San Antonio, Tex., Track Races, San Antonio Auto Club.
- Nov. 27.....Savannah, Ga., Vanderbilt Cup Race, Savannah Automobile Club.
- Nov. 30.....Los Angeles, Cal., Track Races, Motordrome.
- Nov. 30.....Savannah, Ga., Grand Prize Race, Savannah Automobile Club.
- Dec. 25-26.....Los Angeles, Cal., Track Races, Motordrome.
- Nov. 3-11.....London, Eng., Olympia Show.
- Foreign Fixtures**
- Oct. 12-22.....Berlin, International Automobile Exhibition.

THE AUTOMOBILE

Vol. XXV

Thursday, October 19, 1911

No. 16

THE CLASS JOURNAL COMPANY

H. M. SWETLAND, President

CONDE NAST, Vice-President and General Manager

E. M. COREY, Secretary and Treasurer

231-241 West 39th Street, New York City

Cable Address - - - - - Autoland, New York
Long Distance Telephone - - - - - 2046 Bryant, New York

SUBSCRIPTION RATES

United States and Mexico - - - - - One Year, \$3.00
 Other Countries in Postal Union, including Canada - - - - - One Year, 5.00
 To Subscribers—Do not send money by ordinary mail. Remit by Draft,
 Post-Office or Express Money Order, or Register your letter.

Entered at New York, N. Y., as second-class matter.
 The Automobile is a consolidation of The Automobile (monthly) and the Motor
 Review (weekly), May, 1902, Dealer and Repairman (monthly), October, 1903,
 and the Automobile Magazine (monthly), July, 1907.

Baggage Must Be Carried

WHAT would you think of a well-dressed young man living at one of the leading hotels in New York starting out on a Monday morning for the laundry with both coat pockets filled with collars, his pajamas under one arm, his soiled linen under the other arm, his hose in one hand and old handkerchiefs in the other hand? Such a sight would be an absurdity, yet many of our automobile tourists do this identical thing when it comes to going away in their cars for a tour of several days or perhaps a few weeks. The baggage is the bugbear with them; they tie part of it onto the back of the tonneau; they load all that they can into the tonneau until it is so full that the passengers have not room on the floor for their feet; they pile as much as they can onto the running board at the right side and on the left side; they put suitcases between the front fender and the hood on the right side and also on the left side; they put extra oil cans on the floor boards of the front seat; they tie suitcases onto the sides of the tonneau over the fenders; they put some of their surplus clothing under the rear seat cushion and some more of it on the coat rail at the back of the front seat; and with all this done they fill their overcoat pockets, stuff every little pocket in the car doors and fill every spare corner in the car.

It is not very pleasant making a tour in such a car. It might be all right for a short day, with the sun shining and the dust not too bad, but it would be most uncomfortable in a rain storm or on a cold day. The starting off of the Glidden tour was an object lesson in lack of preparedness in carrying baggage on a long tour. On other pages are illustrated the various means of transmuting a pleasure car into something little worse than a truck and little better than a gypsy van.

It was not always the fault of the tourist; part was his and part was also that of the maker of the car body. Car bodies are not well designed for carrying baggage on a tour. There is not enough room to carry baggage commensurate with the number of people traveling in the car. The car body is built to carry people but not

to carry their baggage. This is not right. The body must be improved so that it will carry the baggage. What is the use of having a car to travel for weeks at a time but yet not be able to take the necessary baggage. To travel for one or more days or for one or more weeks a goodly amount of baggage must be taken along, and the car builder who fits a body which is entirely inadequate to care for such conditions is not meeting face to face one of the big problems of the car industry to-day.

The baggage-carrying factor must be wrestled with. It must be settled. It cannot be settled by the method described in the opening paragraph of this editorial. How absurd it is to spend hundreds of dollars imparting the finest possible finish to an automobile body and then hang baggage over every attainable part of the car. This is preposterous. A car should have adequate baggage-carrying possibilities and it is not impossible to make a body that has such. One solution is impressing the body designer of the fact that a car body is intended to carry a reasonable amount of baggage as well as a reasonable number of people.

One solution of the baggage-carrying scheme is to use such baggage accessories as are on the market, consisting, as they do, of trunks for the rear of the tonneau or neat cases for the running boards. No matter where the trunk is it should be of neat design and good finish. It is poor judgment to place a 5-cent trunk on a \$100 car. The scheme of harmony should be carried out. Another solution is to study space economy in body design. The gasoline tank, in the majority of cars, occupies the entire space under the front seat. If pressure feed were used the tank can be placed under the chassis at the rear. One maker is placing the fuel tank under the center of the chassis at the right side where it is entirely concealed and where it is convenient for refilling. If the space under the front seat were left free it could be used for a score of things. The tools, which are usually carried under the rear seat, can be placed under the front one. These tools should be under the front seat, because, then, they can be obtained and put away again without disturbing everyone in the tonneau.

When the tools are located under the front seat the space beneath the rear seat should be utilized for carrying spare tires and suit cases. It seems folly to suggest carrying all here, but some foreign makers have solved this problem and are able to get two suitcases under the seat and carry two spare tires back of the tonneau. One maker has become still more economical and has designed his top to fold over this compartment. There is plenty of room in the rear of the tonneau for suitcases, tires and other small packages, but you cannot get them into such a space unless the body design is carried out accordingly. It is a question of designing and not an after-thought. When the tailor makes your overcoat he puts in the pockets. They are not added as needed after the coat has been worn half a season. The fact that you do not fill each pocket each time you put the coat on is not any reason why you should not have the pockets. The pockets are useful, they serve their purpose, and when needed they are needed.

So with an automobile, the baggage spaces are needed. You may not make any use of them in trips around town, but the first time you go away to spend a day

or so they are very much in demand. Then there is a rallying to the hardware store for rope or leather straps to decorate the outside of the car with traveling necessities. The 1912 body maker should meet this question face to face. If he cannot entirely solve it he should solve as much of it as he can. If you cannot have the whole, then furnish a part, at least. This work cannot be accomplished at once, it will take a few seasons, perhaps more.

In carrying baggage several points of value should be considered. A suitcase should be protected. As it is at present if the suitcase is carried outside of the body the dust finds its way into the interior, to the damage of all the clothing. If wet weather is encountered there is much damage due to dampness. As it is at present when you go on a tour of several days you run a chance of ruining the car finish with the suitcase or spoiling the suitcase. Neither of these is economical. It should be possible to use a suitcase a few days on a car without injury. Extra tires have always been

an eyesore on highly finished cars and should be removed from the side of the car. If the tires have to be carried on the side they should be encased in good covers and not left without any covering at all with the paper wrapping that was on when taken out of the tire depot.

The external appearance of the car has a moral effect on all who see it. When a car starts out loaded for a tour it should tend to excite the desire for touring in the minds of those who cannot go. A well-trimmed car, which looks a tourist in every respect, will do this; but a car with baggage scattered all over it will not attract but actually repel. It will help touring when cars are fitted with bodies built to carry baggage for tours. The very fact that care has been taken to provide such spaces impresses the car owner with the fact that the car is intended for touring. As it is to-day the owner simply thinks of his car as an around-town vehicle and not a cross-country one. The car owners can assist in this work by taking it up with the makers.

Shows Engross Attention

NEW YORK CITY, Oct. 17—Applications for exhibition space at the coming show of the N. A. A. M. at the New Grand Central Palace continue to be received. The show will be held January 10-17 and will no doubt be a great success, as the space remaining is rapidly being decreased. Among the latest applicants are the Decatur Motor Truck Company, Universal Motor Truck Company, Atterbury Motor Car Company, Velie Motor Car Company, Koehler Company, Bergdoll Company, Metz Motor Car Company, Westcott Motor Car Company, King Motor Company, Bushnell Press Company and the Atlantic Motor Truck Company.

Chicago Show Successful

CHICAGO, Oct. 16—The Fall show of the Chicago Automobile Trade Association, which came to an end Saturday night, was a success far greater than anticipated by its promoters at the beginning of the week. Favored by Indian Summer on all but the last day, the turnout of the prospects was surprising and as a result many of the dealers down the row actually made sales that were not anticipated. The country dealers, too, took a great interest in the affair and some of the large branches like Ford, Buick, Studebaker, Hupmobile and Overland had their agents come in and look over the 1912 models.

There only was one feature that slipped a cog. That was the trackless trolley, made up of demonstrating cars which were supposed to carry spectators up and down the row. The idea was all right in theory but apparently did not work out well, the people being puzzled as to how to get tickets. Joy riders took advantage of the opportunity to a certain extent and toward the latter end of the week some of the dealers pulled their cars out of the line and controlled them themselves. However, the fundamental idea seems all right and doubtless another year the details can be worked out better and the trackless trolley made really useful.

Outside of the Chicago fire celebration on Monday, the feature of the week was the truck parade which was held Friday night. The parade was organized at a day's notice but despite this there were more than 200 vehicles in line, the majority of which were furnished by the big mercantile houses of Chicago, which took a great interest in the turnout. The show was put on with the object of stimulating trade at this particular season, and, judging from the numbers who attended the salesrooms during the week, it was a big success.

New Sanctions Granted

NEW YORK CITY, Oct. 17—A telegraphic application for a sanction covering a tour from Denver to New York has been received by the contest board of the A. A. A. It will probably be granted at an early date according to advices here. The matter has been turned over to Ralph W. Smith, of Denver, Colo., who is one of the twelve members of the contest board, and will be decided by him.

Part of the route between these two cities was covered in the Glidden tour of 1909 and there is no reason why the tour should not prove a success since conditions are very good for intermediary points. The date of the tour is from October 26 to November 7. The tour will be held by the Denver Chamber of Commerce.

Sanction has been granted for a series of races to be held over the Los Angeles motordrome on October 21 and 22. There are a number of cars which entered in the Santa Monica race which will participate in the events. The race is held under the auspices of the Los Angeles Motor Dealers' Association.

Kansas City at Peace

KANSAS CITY, Mo., Oct. 16—Special telegram—Kansas City automobile dealers have at last consolidated. After 2 years of wrangling, dealers of both organizations met here to-night and formed a new association which they named the Kansas City Motor Car Dealers' Association. This is the culmination of the bitterest fight ever known in the motor world. Two shows a year have been held and thousands of dollars have been spent by the dealers of each association to outdo the other; many attempts have been made to consolidate both associations but up until to-night they have met with defeat. By unanimous vote one big automobile show was decided upon, the date being set immediately after the Chicago show.

The following officers were elected: J. Frank Witwer, of the Witwer Motor Car Company, president; W. E. Mallory, of the Jackson Motor Company, vice-president; R. C. Greenlease, of the Greenlease Motor Car Company, secretary; and H. G. Kirkland, of the Overland Company, treasurer. The show committee follows: T. S. Dey, Geo. A. Bond, C. B. Riggs, S. F. Scott and E. S. Hunnewell.

This amicable solution of the situation is a most desirable one as the different dealers and branches, as well as the industry, have suffered because of the unnecessary rivalry during the last couple of years.

Saurer-Mack Combine Completed

NEW YORK, Oct. 18—The uniting of the Mack and Saurer truck interests, which was announced in these pages some weeks ago, has been perfected, the new organization, an incorporation of Delaware, being known as the International Motor Company, with a capital of \$10,000,000. This new incorporation will have its head offices at 30 Church street, New York City, and will have the entire management and supervision of The Mack Bros. Motor Car Company, Allentown, Pa., and the Saurer Motor Truck Company, Plainfield, N. J. The manufacture of Mack and Saurer trucks will be carried on at these respective plants, the factories being conducted as distinct organizations. It is expected that the output for the coming year will be approximately 2,000 trucks of different types and load capacities. The present sales branches of both Mack and Saurer will become the branches and agencies of the International Motor Company, which organization will conduct in all of the principal cities service stations for both makes of trucks. These stations will include inspection and maintenance systems.

Officers and directors of the International Motor Company are: President, C. B. Coleman; Chairman of the Board, W. D. Sargent; Vice-President, J. M. Mack; Treasurer, S. C. Richardson; Secretary, Vernon Monroe. Directors are: Otis H. Cutler, President American Car & Foundry Co.; Benjamin Story, Jr., Vice-President of the Bankers Trust Co.; Arthur H. Lockett, Pomroy Bros., bankers; Hunter Marston, Blair & Co., bankers; Charles H. Sabin, Vice-President Guarantee Trust Co.; George B. Case, of White & Case, attorneys; William G. Pearce, Vice-President American Brake Shoe & Foundry Co.; C. P. Coleman, President Saurer Motor Truck Co.; W. D. Sargent, President Reading Steel Castings Co.; Herbert H. Dean, Edward B. Smith & Co., bankers; John M. Mack, President Mack Bros. Motor Car Co.; Joseph S. Mack, Treasurer Mack Bros. Motor Car Co.; Montgomery Hare, attorney; Warren A. Wilbur, President E. B. Wilbur Trust Co.; Harry W. Davis, Secretary Delaware Trust Co.; Martin E. Kern, Vice-President Mack Bros. Motor Car Co. The general offices of the International Motor Car Company will be at 30 Church street, New York City.

Denver Electric Parade and Reliability

DENVER, COL., Oct. 14—The opening feature of the Second Annual Electric Show of the Colorado Electric Club, which opened here this evening, was a big parade of electric vehicles exclusively. Never before in America has there been such a parade and the enthusiasm it created augurs well for its adoption by electric clubs in many other sections of this country. It was an electric parade in every sense of the word, even the policemen, who cleared the way, rode in electric runabouts and the bands appeared in huge electric band wagons. Many of Denver's most prominent people entered their cars, many of which were beautifully decorated.

Handsome prizes were awarded to the first eight cars in the coupé and open runabout classes. Mrs. Charles A. Murnan's coupé, which was covered with a profusion of imitation mountain columbines, the heart of each one being a tiny incandescent light, won first place in its class. Mrs. W. P. Carstarphen, Jr., wife of W. P. Carstarphen, president of the Colorado Electric Club, presented the best open runabout. The body of the car was draped in white and poised in front of the driver was a large star outlined with electric lights.

DENVER, COLO., Oct. 17—Special Telegram—The winner of the 880-mile Denver reliability tour held here last week is still in doubt. A protest has been filed against the decision of the ref-

eree in awarding first place to the Flanders roadster, which was announced to-day as winner, with only 17 points against it. The Ford was awarded second, 19 points; and Cadillac, third, 23 points. The Ford protested the decision on the ground that the technical committee did not inspect the Flanders properly. The decision of the judges was delayed because of the thorough mechanical tests given the cars after finishing the tour and the final result now is delayed indefinitely because of the absence of the referee from the city. The twelve cars left Denver Monday, October 9, and returned Friday after covering 880 miles of prairie and mountain country in Colorado and Wyoming. The route covered fine selling districts and the excellent showing of the cars under the severe conditions means a great impetus to rural trade. The tourists were welcomed enthusiastically at all points, the run was a success in every way.

Car	Driver	Penalty
Flanders	L. M. Slater	17
Ford	William Thorney	19
Cadillac	Bert Hall	23
Ford	Fred Alkire	35
Regal	J. E. Barker	54
Everett	M. B. Fletcher	59
Flanders	Leroy Ward	74
Mitchell	A. J. Wilson	84
Reo	Jas. McDonald	103
Elmore	Geo. Williams	104
Maxwell	Geo. McIntosh	104
Buick	R. E. Young	Withdrawn

Wagner to Drive a Fiat

Louis Wagner, one-timer winner of the Vanderbilt cup and winner of the first American grand prize race, has been selected by the Fiat Company to drive a Fiat in the coming grand prize race in place of Felice Nazzaro, originally selected.

National Wins Santa Monica

(Continued from page 661)

The cylinder sizes of the different cars in the four different races are as follows, the order of cars being the same as in the tabulations given on pages 660 and 661. All cars were four-cylinder types:

Car	Driver	Bore (inches)	Stroke (inches)
National	Herrick	5	5 11-16
Marmon	Patschke	4 3-4	7
Marmon	Dawson	4 3-4	7
National	Merz	5	5 11-16
Pope	Dingley	4 3-4	5 1-2
Stutz	Lewis	4 3-4	5 1-2
Marmon	Keen	4 23-64	5
Marmon	J. Nikrent	4 23-64	5
Mercer	Hanshue	4 3-4	5
Buick	L. Nikrent	3 3-4	3 3-4
Ford	Charles	3 3-4	4
E-M-F	Seibel	4	4 1-2

The official times for the nine contestants in the small race for cars with motors under 23 cubic inches were received too late to appear in the general tabulation. This race had four contestants that finished, a Buick, a Ford, an E-M-F and a Flanders. The Buick, driven by Nikrent, traveled the 101 miles at an average speed of 59.20 miles per hour; the Ford at 57.21 miles per hour, and the E-M-F at 52.30 miles per hour. The total running time of the Buick was 103 minutes and 21.70 seconds; the Ford's time was 105 minutes 22.45 seconds, and the E-M-F time 115 minutes and 54.20 seconds. Soules, driving a Flanders, completed the race, but his time is not known; Hanshue, in a Reo, made 10 laps; Fleming, in a Locomobile, ran 10 laps; Dequelin, in a Sunset, made 8 laps; Anthony, in a Regal, traveled 5 laps, and Smith, in a Maxwell, 2 laps.

World's Records Broken at Peoria

PEORIA, ILL., Oct. 14—In concluding the two-day race at the Peoria track, held as one of the attractions at the National Implement and Vehicle Show, the Marmon Wasp and Hotchkiss Whirlwind lowered the Illinois State record for 5 miles on a 1-mile circular track very substantially. The former record, made on the Hawthorne track at Chicago, was 4:70 for the 5 miles. Heineman, driving the Wasp, made the five laps in 4:33 and Judy Kilpatrick, driving the Hotchkiss, lowered the Wasp's time by 1 second.

The only accident of the two-day meet came in the last lap of the last race on the final day of the meeting. The big Hotchkiss car, driven by Kilpatrick, was driven into the fence on the 1-4-mile turn by Raimsey in his Cino. Neither driver nor car was badly injured.

On the first day of the meet, October 13, John Raimsey, driving

the Cino racer, set two world's records for a 1-mile, flat, circular track in the 10-mile, class E, non-stock race for cars of 300 cubic inches piston displacement and under, the feature of the opening day's motor race card at the National Vehicle and Implement Show here this afternoon. With a standing start he made the first lap in 1:03, a new world's record for cars of that size. He pulled down another world's mark when he completed the 10 miles in 9:56 2-5. He finished a winner by 3 seconds over a field of eight fast cars. Raimsey also won a 5-mile, class C event, for cars of 231-300 cubic inches piston displacement.

In the time trials Judy Kilpatrick in his 200-horsepower Hotchkiss nosed out Heineman in the Marmon Wasp, negotiating the mile in :55 2-5. The Wasp was a second slower. Cino car finished third in :56 flat.

The summaries for both days are as follows:

SUMMARIES OCTOBER 14

Time Trials, 1 Mile

Car	Driver	Time
Hotchkiss	Kilpatrick	0:55 2-5
Marmon Wasp	Heineman	0:55 3-5
Cino	Raimsey	0:56
Staver-Chicago	Monckmeier	1:00 1-5
Interstate	Fouts	1:01 2-5
Little Case Giant	Heineman	1:02

5-Mile, Class C, 231 to 300 Cubic Inches

Cino	Raimsey	4:59 4-5
Staver-Chicago	Monckmeier	5:03 3-5
Little Case Giant	Heineman	5:03 4-5
Staver-Chicago	Knudson	5:08

2-Mile, Novelty, Australian Pursuit, Stock Cars

Staver-Chicago	Monckmeier	5:08 1-5
Case "6"	Jaggersberger	5:16

10-Mile, Class E, 300 Cubic Inches and Under

Cino	Raimsey	9:56 2-5
Abbott-Detroit	Roberts	9:59
Staver-Chicago	Monckmeier	10:00 1-5
Staver-Chicago	Knudson	10:35

3-Mile, Class E, Handicap

Marmon Wasp	Heineman	3:04
Little Case Giant	Maxwell	3:20 2-5

10-Mile, Class C, 301 to 450 Cubic Inches

Velie	Stickney	10:38 1-5
Interstate	Fouts	11:24

SUMMARIES OCTOBER 14

Time Trial, 1 Mile

Marmon Wasp	Heineman	0:54 4-5
Cino	Raimsey	0:56 3-5
Hotchkiss	Kilpatrick	0:57 1-5
Abbott-Detroit	Roberts	0:57 3-5
Velie	Stickney	1:00 3-5
Interstate	Walker	1:02 1-5
Little Case Giant	Heineman	1:02 4-5

Buick Match Race, 3 Miles

Buick	Ross	3:41
Buick	Wonderlick	out

Class C, Non-Stock, 231 to 300 Cubic Inches, 5 Miles

Cino	Raimsey	5:14
Staver-Chicago	Monckmeier	5:20 1-5
Little Case Giant	Heineman	5:23 1-5
Staver-Chicago	Knudson	5:48

Class E, 3-Mile Handicap

Little Case Giant	Maxwell	2:59 3-5
Marmon Wasp	Heineman	3:00 4-5

Class C, Non-Stock, 301 to 450 Cubic Inches, 5 Miles

Interstate	Walker	5:16 2-5
Interstate	Fouts	5:22
Velie	Stickney	5:25 1-5
Buick	Wonderlick	5:27 1-5

High-Gear Slow Race, 1/8 Mile

Interstate	Fouts	1:01 4-5
------------	-------	----------

Class E, Non-Stock, Under 450 Cubic Inches, 10 Miles

Staver-Chicago	Monckmeier	10:05
Interstate	Walker	10:16 2-5
Velie	Stickney	10:25
Little Case Giant	Heineman	10:35 3-5
Buick	Ross	10:45 1-5
Staver-Chicago	Raimsey	10:52 4-5
	Knudson	5:49

Class D, 5-Mile Free Handicap

Little Case Giant	Raimsey	5:40 1-5
Staver-Chicago	Heineman	5:45 1-5
Velie	Stickney	5:52 2-5
Staver-Chicago	Monckmeier	5:55 2-5
Interstate	Walker	5:00 3-5

Special Race Against Track Record, 5 Miles

Marmon Wasp	Heineman	4:33
Hotchkiss	Kilpatrick	4:32

Minneapolis to Hold Hill Climb

MINNEAPOLIS, MINN., Oct. 15—Another change has been made in the date for the coming hill-climb and the sanction which was applied for last week affixes the time for Thursday, October 26, at 1:30 p.m. Arrangements have been completed and permission has been secured to hold the contest on the Columbia Heights hill leading off Central avenue. The hill is three miles long.

S. L. Stone, for the past three years assistant to J. B. Eccleston, sales manager of the Oakland Motor Car Company, Pontiac, Mich., has been transferred to Buffalo, where he becomes general manager of the Centaur Motor Company, of that city, dealers of Oakland cars in western New York and Pennsylvania.

The Newton-Humphreyville Company, Newark, N. J., were appointed Thomas dealers by Manager C. S. Henshaw, of the New York branch, the past week, and will handle that car in central New Jersey.

S.A.E. Visit is Gaining

NEW YORK, Oct. 18—Foreign manufacturers are manifesting an active interest in the intending visit of members of the Society of Automobile Engineers to Europe. Many of them have expressed a willingness to open their establishments to the inspection of the party which leaves New York November 1. The latest invitation is from the famous house of Lemoine, in Paris, which is perhaps the leading manufacturer of motor vehicle axles and forgings in Europe. The proprietors have asked the officials of the S. A. E. to include a visit to the plant and an inspection of the various processes of axle construction in the program during the stay of the members in Paris.

While in London the S. A. E. party will inspect the workings of one of the largest garages handling public service vehicles. This is of unusual present interest on account of the financial success of the great London motor bus and motor cab services which is attributable to efficient methods of garage management.

Detroit Building Operations Brisk

DETROIT, MICH., Oct. 16.—As further evidence of the prosperous condition of the automobile industry, the Hudson company has broken ground for a large addition to its extensive plant on Jefferson avenue completed only a year ago; and two other companies, the Hupp Corporation and the Hupp Motor Car Co., will begin the erection of new factory buildings in the immediate future.

The Hudson addition will connect with the east end of the present plant. It will be 530 feet long, 60 feet wide and two stories high, and will conform, in type of construction and in its external appearance, to the rest of the establishment. Steel and concrete are to be used almost exclusively in the construction. The extension will give the company 63,600 additional square feet of floor space. It is to be ready for occupancy by January 1.

The Hupp Corporation has awarded the contracts for its new factory building and power house at Lycaste street and the Michigan Central Railroad and work is to be rushed to have the structure finished in the minimum of time.

As a site for a complete new plant, the Hupp Motor Car Company has acquired 7 acres of land at Mount Elliott and Milwaukee avenues, adjacent to the new Belt Line Railway and opposite the plant of the Grabowsky Power Wagon Company. The purchase price is said to have been about \$40,000. Plans are being prepared for a plant that will triple the capacity of the company's present factory, at Jefferson and Concord avenues. These quarters were outgrown several months ago and it was found necessary to lease other buildings.

Work is progressing so rapidly on the new Ford buildings, which will double the present capacity of the big plant, that they will be finished by December 1, fully a month earlier than time called for in the contracts, according to the present outlook. In this connection, it transpires that the John R. Kime mills, of Buffalo, which do most of the pressed steel work for the Ford company, and which are controlled by the latter, will be moved here when the extensions are completed. This information comes direct from Henry Ford, president of the company. "We are also putting in a new 5,000 horsepower gas engine to replace the 1,600 horsepower engine we are now using," said Mr. Ford to the representative of THE AUTOMOBILE. "We intend to produce our own gas for this engine."

Local car makers are greatly interested in the outcome of plans now under way for the establishment of a mammoth steel plant on a 50-acre site west of the city, on the River Rouge. The interests behind M. A. Hanna & Co., of Cleveland, are backing the project. The same interests control the Detroit Iron & Steel Co., which has a large plant on Zug island, in the Detroit river, for the production of steel in the raw state. The new plant, if the plans go through, will be operated in conjunction with the Zug island enterprise, taking over the raw steel and turning it out a finished product for all manufacturing purposes. The concern will be known as the Michigan Steel Co. and will be capitalized at \$2,500,000. The Union Trust Co., of this city, and Peabody, Houghteling & Co., of Chicago, have agreed to underwrite the bonds that are to be issued. The establishment of a steel plant here would mean a great deal to the automobile industry of the town in the way of quicker deliveries. It would also mean a big saving in freight rates.

The organization of the new export bureau of the Detroit Board of Commerce was perfected at a largely-attended meeting of representative manufacturers, last week, and the bureau is planning a vigorous campaign for the extension of Detroit's export trade. The work will be in the hands of the same committee that had charge of the preliminary details, F. E. Fisher,

of the Studebaker Corporation, representing the motor car interests, as previously announced.

A recommendation by the special tax commission appointed by Governor Osborn to investigate the question of taxation, that corporations be taxed on their intangible values, has caused some alarm among the car manufacturers, who are already making ready to oppose this plan when the commission's report is taken up for discussion in a series of public hearings at Lansing, in the near future. The car makers declare that the proposed plan is confiscatory.

Accessory Organization Grows

NEW YORK, N. Y., Oct. 14.—At a recent meeting of the Motor and Accessory Manufacturers held at headquarters in this city, twenty-five new members were enrolled, representing different interests in the automobile accessory field. This brings the total membership up to 247.

The following are the applications received into membership: Automobile Supply Manufacturing Company, 220 Taaffe Place, Brooklyn, N. Y.

The Batavia Rubber Company, Batavia, N. Y.

Bower Roller Bearing Company, Detroit, Mich.

The Buda Company, Harvey, Ill.

Carnegie Steel Company, Carnegie Building, Pittsburg, Pa.

Detroit Electric Appliance Company, 264 Jefferson avenue, E., Detroit, Mich.

Dochler Die Casting Company, 187 West 9th street, Brooklyn, N. Y.

The Eagle Company, 98 Warren street, Newark, N. J.

The Esterline Company, Lafayette, Ind.

Falls Machine Company, Sheboygan Falls, Wis.

Federal Rubber Mfg. Company, Cudahy, Wis.

The Hess Spring & Axle Company, Carthage, O.

International Acheson Graphite Company, Niagara Falls, N. Y.

Jacobson-Brandow Company, 122 Columbus avenue, Pittsfield, Mass.

The G. Piel Company, 13th street and Boulevard, Long Island City, N. Y.

The Simms Magneto Co., 1780 Broadway, New York City.

The Start-Lite Company, 1502 Michigan avenue, Chicago, Ill.

Stutz Auto Parts Company, 221 West 10th street, Indianapolis, Ind.

The United Rim Company, Second National Bldg., Akron, O.

Universal Tire Protector Company, Angola, Ind.

Universal Wind Shield Company, 1607-9-11 Prairie avenue, Chicago, Ill.

Voorhees Rubber Mfg. Company, 18 Bostwick avenue, Jersey City, N. J.

Waukesha Motor Company, St. Paul avenue, Waukesha, Wis.

Widmer Machine Works, 144th street and S. Boulevard, New York City.

Wolverine Lubricants Company, 80 Broad street, New York City.

Wilson Heads American Manufacturing

NEW ALBANY, IND., Oct. 16.—George H. Wilson has been elected to the presidency of the American Automobile Manufacturing Company, of New Albany, Ind. He succeeds Berton B. Bales, who retired several weeks ago. This concern has decided to broaden the scope of its products and in the future will manufacture a complete line of pleasure cars, consisting of runabouts, roadsters, touring cars, coupés and limousines.

Introduction of Power Wagons

By HAYDEN EAMES

It seems to be a habit of the practical mind to try to stretch its own specialty to the solution of every problem it encounters, whether obviously fitted for it or not. For many years this tendency, directly or indirectly, delayed the work of introduction of power wagons more perhaps than any other. Those most interested in the introduction of the power wagon during these years were engineers; very few others were interested at all, and, in consequence, took the engineers' point of view on faith. For a matter of 10 years, hardly a month went by that we were not treated to the information that such and such an engineer had solved the power wagon question, whereas, as far as the engineer was concerned, it was already solved, as there is ample evidence to prove the superiority of the power wagon over all other kinds of road transportation, at least as long as 10 years ago. Whatever improvements the intervening time or the future may have made or will offer, the mere engineering problem could properly be considered to have been solved when the new method afforded superior convenience and economy over then existing methods without corresponding sacrifice.

The peculiar mental bias cited in the opening phrase, however, concentrated the attention of those interested upon the search for some engineering solution, and they were correspondingly diverted from any attempt to remove the true impediments to the introduction of the power wagon during that period, which were almost exclusively administrative, and psychological, and in a less degree financial. In view of the large number of former inventions which are publicly known to have gone through the same experience, the difficulty of diverting the attention of those interested as well as the public from the engineering question seems amazing when regarded in retrospect.

While the introduction of the power wagon has made some progress during the period named, it is still conservative to say that the surface has not been scratched. Power wagon failures are still being reported by people who are trying to use the new machine in the old way; who, unconsciously, are limiting the capacity of the power wagon by the practices of draft-animal days. The first electric pleasure vehicle I ever saw was supplied with a whip socket, for which the body-maker's only excuse was "Because we had always been in the habit of putting them on." A recent alleged failure of power wagons reported to me was almost as hopeless of cure as though the owner had insisted on putting oat-bins into his machine shop; in fact, the cause of failure was somewhat analogous. It is this that we have to contend with. It is mainly to overcome this mental attitude, directly or indirectly, that the Electric Vehicle Association of America was created—of course, as a means to another end, but, nevertheless, that is the direction in which its weapons have got to be directed if it is really to be of any service to its projectors. Unfortunately, it is not only going to be necessary to directly educate owners and prospective users of power wagons, but their employes, even to the drivers, who have in most cases got to modify their points of view and methods before the introduction of power wagons can be expected to be general.

Like much other labor-saving machinery, especially in the transportation field, the power wagon speeds the men up all along the line. The operators, although much fewer for a given product, have to work harder and faster, but almost invariably obtain their compensation from shorter hours, perhaps not in proportion, but still to an agreeable extent. The increased speed is the first thing the driver feels. It takes him some little time to find his own advantage.

A good illustration lies in a story which was told me by an Adams Express agent in Buffalo some 8 or 9 years ago. At that point and at that time, the Adams Express Company had the first really successful installation of electric vehicles. Owing to a poor selection of the size of the vehicles in relation to the routes covered and the service to be done, the station was not as economical as it could have been made, but it was at that time an exceedingly well-operated station, and in all probability was at that time, in spite of the above-mentioned handicap, delivering express packages more cheaply than it was being done anywhere else in the United States by any means whatsoever. When the wagons were first introduced, the drivers immediately felt the exactions of the greater speed; they felt themselves speeded up, and they were loud in their denunciations of the whole scheme. They rejoiced in every accident that occurred and took delight in the misfit electrical conditions under which, at first, the vehicles were charged. At the time I speak of, the whole station had changed. The drivers had discovered that instead of being dragged back from the last package on distant routes at a very slow rate by a tired horse, the electric express wagon now running light brought them back at even a faster rate than that at which it had been running during the day. As one of them said to me: "I can deliver all my packages now, and get home a half hour sooner than I used to." At that time, the express agent offered to buy a new team with brass-trimmed harness for any one of the electric wagon operators that would drive it, but it was rejected with scorn.

All this education takes time, and hardly anybody is addressing himself to try to bring it about.

Perhaps the commonest of all bad practices is that of applying the power wagon to a delivery route previously operated by a horse wagon of the same size, and limiting it thereto. The difference in the actual cost of operation between a given size of horse wagon and a given size of power wagon is seldom in favor of the latter, and this is true, also, of the first cost of the complete unit. The principal economical virtue of the power wagon lies in its character of labor-saving machine. Under almost all conditions the price of drivers is the largest single item of expense. Taking the station hands into consideration, the payroll is always the largest single item of expense.

Efficiency in Delivery

The problem of the successful user of the power wagon then lies in the question of "How much goods can I deliver per man per day?" or, "How much work can I do with a man per day?"

It does not seem to take an Isaac Newton to realize that if the work of a man operating the new machine is arbitrarily limited to only what he can do with the old, nothing is gained. In all regular delivery systems, the problem is not only to lay out the routes to fit the new machine, but to select the machine sizes so that the largest possible machine that can be fully loaded will completely empty itself over a selected route in a man's day's work. This extremely simple mathematical thought seems to be almost incomprehensible to the majority of power wagon users. In some express companies, and others, whose principal business is city transportation, certain routes have become a positive institution, and, although usually originally of an entirely arbitrary selection, are assumed to be as immutable as the value of Pi. This sounds like a joke, but it is anything but a joke to those of us who have been frequently called upon to demonstrate the superiority of power wagons over draft-animals. Those who have not had the experience will be perfectly surprised at the

frequent high grade of intelligence which declines to rid itself of the inherent necessity of operating on these time-honored routes.

We are, however, occasionally treated to a refreshing case of independence and directness in the substitution of power wagons for horse service.

In the Fall of 1901, the Adams Express agent in Pittsburgh put in service at East Liberty a light electric express wagon, and in doing so gave instructions to the agent at that point, against the latter's protest, that he should lay off all four of his horse wagons, and do his work with the electric, that he (the Pittsburgh agent) would decide later whether he would allow him any of the horse wagons back or not.

This was certainly taking the bull by the horns; but, as the East Liberty agent's job was at stake, the result justified the risk, and only one wagon of the four was put back into service, and that only as an extra. Of course, the intention of this barn-yard approach could easily have been defeated had the size and speed of the wagon been unsuitable to the particular service to be performed.

A good example of what it means to speed up, not only the operators, but the daily routine and methods, is afforded by the ordinary practices of our great express companies when horses were a rule with them.

I have before me a careful plotting of ten established routes of different express companies in New York City made in the spring of 1902. You will probably be surprised to discover that from the time the horses left the barn in the morning until they got back at night, the teams were standing still 40.4 per cent. of the time, the maximum idleness on any one route being 64.25 per cent., the minimum 27.25 per cent. At least 50 per cent of this is due to the fact that the gait of the man matched the gait of the horse. The draft-animal belongs to a slow age, and the man who drove him as a rule adapted himself to it.

Man Takes Horse's Gait

If any one is in doubt as to the reality of this effect, let him observe the Egyptian plowman with his water Buffalo. The ordinary plowman is slow enough, but the Egyptian's movements suggest the chameleon. The ordinary draft-animal operator grades up from this on the way to the operators of machines. But the accessory facilities have also been accommodated to the draft-animal, and are, correspondingly, impeding its successor. The methods of loading and unloading and of handling packages, the shipping room arrangements and routine, and even the unnecessary time, assumed to be necessary, even with the existing facilities, are all adapted to the gait set by the horse, and all tend to deprive the machine owner of his advantage; and, remember, these speeds are not set to what the horse can do or necessarily actually does, but what he *may* do. Long practice has subconsciously led to their adjustment to the uncertainties of the horse in spite of the goad of competition. If you have to allow a half hour's leeway in 25 per cent of the cases in which a horse has to make a 2 hours' trip, what is the use of trying to save 15 minutes of a half hour's loading time?

This, roughly, illustrates the subconscious mental process by which all these measures accommodate themselves to the horse, and may indicate, generally, why they have all got to be changed before the power wagon will be generally acceptable without question. Those who have been through the experience cannot fail to recall the immediate effect of the use of the power wagon toward remedying this condition. The difficulty is to get the first one purchased and properly used.

I have before me a plot of the far-East Brooklyn route of the New York Transfer Company, both with horse service, and with electric vehicles. This involved the operation of what is known as a route-wagon, and no opportunity whatever was afforded at the time to modify the route, or take any other direct advantage of a labor-saving character of the power wagon. During the trip the team stood still 30 per cent of the time, but the power wagon stood perfectly still only 22¼ per cent of the time. The

actual difference between the idle periods of the two outputs was three-quarters of an hour, but the power wagon completed the service one and one-half hours before the team. Of course this wouldn't do.

The experiment was not made for the purpose of introduction in that instant, but, in combination with other available routes, indicated to the demonstrator at once the immense saving that could have been accomplished had the education of the drivers, and the speeding of the package handling, the proper arrangement of shipping rooms, and wagon interiors, to that end, and the reconciliation of wagon capacities and route arrangements been immediately begun. But, perhaps, it is too much to expect that the development of special mechanical facilities for loading and unloading will precede rather than follow the general introduction of the new method.

System a Great Essential

The reality of the impediment which present handling facilities interposes to the introduction of power wagons can be illustrated by a case I once came across of a high grade dry goods company in one of our largest cities, whose installation of electric vehicles could not be made to pay. Examination developed the fact that no effort was made to crate or handle the packages in the waiting room with any reference whatever to the respective routes upon which they were to be delivered, and that the routes were laid out with equal disregard to the shortest possible empty haul; following their practice with draft-animals, the wagons were driven to the opening points of the routes, and, extraordinary as it may seem, the packages were all taken out of the wagons, and spread along the beds of grass between the curb and sidewalk. Some of the wagons carried one boy, and some two boys—each with a large canvas bag. Each boy pawed over the pile of packages and selected and put in his bag the packages belonging to the block that he was to cover, and those that were left the driver took back into the wagon and drove to the point at which the boys were respectively expected to finish their bags. Rather than this, the firm should have abolished its entire wagon system and employed boys with bags to carry the packages to the destinations on public trolley cars.

To the credit of the owners I must say that they finally looked into it, and the difficulty was properly remedied with correspondingly successful result. This was, of course, an extreme case, and unusual in the use of the boys, and the sorting of the packages on the ground; but the shipping room arrangements were by no means unusual. In fact, inadequate loading or unloading facilities are almost universal. The simple convenience of a ready-loaded crate to slip into the wagon upon arrival is most uncommon, and such suggestions are almost invariably resisted—not for any reason, but because we haven't been accustomed to do so. It sometimes happens in large shops that packages of a certain large classification are of a size and character which admit of their delivery through chutes to the shipping room. It is almost invariably the case that by a slight change in the arrangements, the sorting of these packages according to wagon routes can be made once and for all on the floor where and when they are put in the chutes. But, as far as I know, it has heretofore proved impossible to induce anybody to do this, although I have yet to hear a valid objection offered to it in any case, and yet the delivery manager of such an organization often calls himself a business man, although he unhesitatingly keeps the most expensive unit of his investment standing idle, apparently, for no other object than to relieve the strain on his own ingenuity.

Many of these requirements could be made to improve the horse service if the horse himself had the endurance to stand it—a point that is frequently overlooked. As has often been said, there is no watt-meter on the horse, and, in consequence, he is generally worked more or less beyond his normal capacity, the loads and routes being more or less subconsciously selected to that end. To save this loading time, therefore, means to cut down the horse's *est.* without which he cannot do the work

assigned to him, but the power wagon needs no rest in the same sense, and it is a large enough investment to make it desirable to conserve this time.

In considering this general question of reducing delays and loading times, it is often overlooked that the day's mileage is a rough measure of the work performed by a unit in a given service. An hour's delay on a 5-ton horse truck, averaging say $2\frac{1}{2}$ miles an hour, may be a large percentage of a day's work in that unit, but measured in dollars it represents only a third of the loss represented by a similar period of idleness in a 5-ton power wagon whose average running speed is $7\frac{1}{2}$ miles per hour.

It is very hard to persuade the average user that the idle periods in the day's work in any way affect a comparison of the draft-animal and power wagon.

The reactionary effect of external conditions goes deeper, and is far more nearly universal than the mere lack of facilities in individual establishments. For example:

The Alley Limitations

The dimensions of many of the down-town alleys in Chicago put a definite limit on the truck dimensions that can be used therein, and nearly all trucks working in that part of the city load or unload in the alleys. The peculiar arrangement of the railroad freight yards in Chicago curtails the efficiency of all methods of highway transportation to such a degree as to greatly dwarf the question of their relative advantages. Those who have investigated this particular case closely state that, it is no exception to the rules that the conditions can be perfectly well met by a rearrangement of these yards with direct reference to the use of automobiles with a probable improvement of 150 or 200 per cent in their loading and unloading capacity. It is reported that the railroads themselves are alive to the situation, and are approaching the solution in a more or less dilatory manner with an entire ignorance of the expert knowledge that is available on this subject in the automobile field.

There are many analogous cases throughout the country; many of them can probably be partially met by special portable loading apparatus of one kind or another applied to the trucks themselves. Next to the increase of factor of safety on operating cost to be obtained by improvement in tire maintenance on the heavier trucks, there is perhaps no single field in which the designing engineer, strictly so-called, could play as large a part in developing this business as right in this field of portable loading apparatus and the design of trucks with reference to special service. This is one of the few departments of automobile knowledge in which there is anything yet to be learned from draft-animal practice, or, rather from the practices that existed during the draft-animal period.

Fruit Handling Very Poor

Up to date the handling of fresh small fruits at automobile speeds has almost invariably entailed loss, and it is ridiculous to suppose that a little ingenuity properly applied would fail to immediately meet this case to which the improvement in speed and certainty offered by the power wagon gives the fruit handler a most obvious gain.

Nearly all the cotton in the Gulf ports, and throughout the South, is handled by negro roustabouts. It is fairly cheap and hard to beat for economy, but it is uncertain and sometimes too slow.

The condition has been partly met by the extension of railroad spurs; but about 2 years ago I knew of a very considerable order for electric 5-ton trucks that was lost because portable jib-cranes could not be applied to them in season to meet the conditions.

More could, of course, be said on this subject, but the examples are sufficiently indicative of the class. In the work of development in this direction, there is still a little to be learned from the practice which prevailed in draft-animal vehicles.

Mechanical ignorance on the part of prospective users, of

course, has got to be expected. At least in the electric field no one is in so fine a position to cope with this as the central stations, and many of them are doing yeomen's service in this direction; but we all remember the time when it was otherwise.

The first considerable installation of electric vehicles in this country was almost ruined because the Central Station manager in that particular instance looked upon the vehicle user as legitimate prey. It was an interesting thing to walk into the charging station at night and see a long row of red-hot cast-iron rheostats through each of which a vehicle battery was being charged in two groups in parallel and to know that the current was being obtained from a 110-volt d.c. circuit which was being metered at the customer's expense nearly three-quarters of a mile away. Even a persistent horse user cannot fail to sometimes discover something. He may have a nephew just from college. At all events, this enlightened proceeding caused the user to put in his own gas engine and generator, and, in consequence, cut the monthly cost of current per vehicle from \$38.00 to \$5.50.

It is hard to believe to-day that such a company, or such people, or such action could have belonged to an organization which is probably to-day doing more far-sighted work in the introduction of power wagons than any association anywhere, and many of whose members were even at that time actively alive to the prospect.

There are, of course, many minor considerations which tend to retard power wagon introduction, and some of them are of a very isolated character. For example: One user of electric livery wagons in New York still uses many horses, and he probably will as long as there is a sale for high grade coach horses, because he raises them and uses his wagons to break them in. This particular firm needs no instructions from anybody. They are as well informed on the economy of delivery, and as well organized, and as unprejudiced, as any wagon user we have come in contact with.

Then there is always the reactionary or interested delivery manager. I have in mind a case where electric trucks came to grief very largely, but not entirely, because the man in charge of them received a personal compensation for every horse wagon he was obliged to employ in excess of the electric installation. As a result of this situation an electric truck averaging about $7\frac{1}{2}$ miles an hour round trip by cyclometer, found itself unable to deliver any more goods per day than a horse vehicle of the same capacity averaging $2\frac{1}{2}$ miles per hour round trip by cyclometer. Whenever, as in this case, it looks as though the laws of nature were suspended to the detriment of the power wagon, it is a pretty certain indication that something of this kind is to be looked for. But apart from these minor, but almost universal, considerations which occur in endless variety, the principal obstacles will be found to be practically limited to those discussed more at length in the above paper.

Public Education Is Needed

The whole question of the rapid introduction of the power wagon to-day is one of public education. We have no right to look for any engineering advance so overwhelming as to relieve this condition in time to be of any great service in the work. The general lines along which experience has indicated this education to be necessary, I have endeavored to set forth above. No associations, no corporations, no individuals are in such a position to force this education as the central stations; and no one whatever, except possibly the team users, is likely to reap as great an ultimate profit by it. The liberal manner in which this central station business has been conducted during the last few years, and the local newspaper advertising involved thereby, means the availability of the press for educational purposes to a degree even greater than that justified by the public interest in the question.

The association seems to be thoroughly alive to this situation, and we have a right to hope that the next year will see results.



A few of the motor buses transporting passengers to and from Chicago depots

COLUMBUS, O.—Shields & Wiseman have opened a garage and repair shop at 241 West Fourth avenue, in this city.

COLUMBUS, O.—O. G. Roberts & Co., 933 East Gay street, have taken the central Ohio agency for the Stearns for 1912.

URBANA, O.—The Only Garage of Urbana, O., has taken the agency in Champaign county for the Ford 1912.

WHEELING, W. VA.—W. W. Price, proprietor of a garage in McCulloch street, will have an agency in this city for the Metz cars.

CANTON, O.—Monnett & Sacher, Canton, O., have taken the 1912 agencies for the Ford, Oldsmobile, Rambler, and Everitt lines for that territory.

OAKLAND, CAL.—Frank R. Fageol, distributor of Rambler cars in Alameda County has opened a handsome new salesroom on Telegraph avenue.

PHILADELPHIA, PA.—An announcement is made of the removal of the United States Motor Company to its new quarters at 216-218 Broad street.

PORTLAND, ORE.—H. L. Keats of this city has secured another agency. His latest acquisition is the Chase commercial vehicle, for which he has the northwest distribution.

HAGERSTOWN, MD.—The Hagerstown Garage Company, will handle the line of 1912 Pullman cars. The company has recently built a large garage on the main street of Hagerstown.

COLUMBUS, O.—A change in the management of the High-Seventh Garage, located at High street and Seventh avenue, was made recently when Norman M. Johnston assumed the management, succeeding J. W. Fritz.

COLUMBUS, O.—R. C. Westcott, 972-976 North High street, has arranged for the 1912 agency for the Regal. The territory covers seven counties in central Ohio, a portion of which will be covered by sub-agencies.

PORT HURON, MICH.—George Yokom's new garage on Military street, when completed, will be able to accommodate 300 cars. The building will be 50x100 feet and will be of concrete and brick.

PORTLAND, ORE.—Edward E. Gerlinger, of the Stoddard-Dayton Auto Company, has secured the distribution for this city and the adjacent territory on the Pathfinder car. In addition to these two cars he will handle the Federal truck.

PORTLAND, ORE.—The Oregon Brush Auto Company, local agents for the Brush line, and the Landy Auto Company, Portland agents for the Garford cars and the foreign Napier, have recently leased new quarters at 31 Alder street.

CLEBURNE, TEX.—The material for the erection of the new factory that is to be built here for the manufacture of automobiles, by H. E. Luck and associates, has arrived on the ground and the work of putting it in place is to be pushed.

COLUMBUS, O.—J. P. Adamson & Company, 35 West Mound street, Columbus, O., has taken the 1912 agency for the Dart delivery wagon, manufactured at Waterloo, Iowa. The territory embraces ten counties in the central part of the State.

BOSTON, MASS.—The United States Motors Company has taken over the Stoddard-Dayton branch. The management will be in charge of Frank J. Tyler, E. H. Lucas will have charge of the retail department, and E. P. Weber of the wholesale department.

WICHITA FALLS, TEX.—The Wichita Motor Company has received the machinery for the factory that it is erecting here to manufacture automobiles. The mechanics that are to be employed in the plant have arrived from Detroit, Mich. The company will at present devote its plant exclusively to the manufacture of auto trucks.

PRINEVILLE, ORE.—H. C. Farris, formerly of Moline, Kan., has recently made partnership arrangements with J. F. Jacker of this city. This company will conduct an express business in the vicinity of Prineville, Ore. Two two-ton Kelly trucks have been installed and will be used to transfer freight, baggage and express from Madras, Opal City, Redmond and other railroad points on the Oregon Central to Prineville.

BALTIMORE, MD.—The Lord Baltimore Motor Car Company, 1523-25 Retreat street, is making preparations to move the motor truck plant from the monumental city and will probably locate in York, Pa. Jacob Baumann, general superintendent, and John Luntz, Jr., proprietor of the factory, were in York last Saturday looking over a number of sites and interesting capitalists in a project to move the plant here. Messrs. Baumann and Luntz left Baltimore Friday morning at 11 o'clock and arrived in York at 4:30 o'clock in the afternoon in a three-ton motor truck via the Baltimore turnpike. The men experienced some bad roads on the trip especially between Cockeysville and Parkton, where the pike had been torn up for a distance of about 10 miles. The men made a stop of about an hour to repair the fan on the truck and an hour and a half at Parkton for dinner. The entire distance was made on high gear and the actual running time was about 3 hours, or at the rate of 19 miles per hour.

NEW ALBANY, IND.—The Borgerding Motor Car Company will sell the Ford in this city.

LOUISVILLE, KY.—J. M. Robinson-Norton & Company, have taken the agency for the Motor Wagon.

YORK, PA.—H. S. Nagle, of Wilkes-Barre, has taken the agency for 1912 line of Pullman cars.

KALAMAZOO, MICH.—Arthur Fiske and Harry Parker have taken the agency for the Lion automobile.

CHARLEROI, PA.—The Spencer Auto Garage has signed up the Franklin dealership for the coming season in this locality.

WASHINGTON, D. C.—After extensive alterations the Buick Motor Company has opened new salesrooms at 1028 Connecticut avenue, N. W.

TACOMA, WASH.—John N. Ball has recently announced the acquisition of the western Washington territory on the Columbia car, with headquarters in this city.

INDIANAPOLIS, IND.—Brandt Brothers, who have been agents for the Lozier in Indianapolis and vicinity for some time, have also taken the agency for the Hupp-Yeats electrics.

PHILADELPHIA, PA.—The Eastman Motor Truck Company has established temporary quarters at 1141 South Broad street, for distribution in Philadelphia and vicinity of the Wilcox Truck.

SEATTLE, WASH.—Realizing that the Pacific Northwest is a rich field for the commercial truck, the Mais Motor Truck Company, is about to establish the Northwest headquarters in Seattle.

WASHINGTON, D. C.—The Wilson Company, agents for the Cole and Krit, has leased the building at 918 Fourteenth street, N. W., and after extensive improvements, will take possession.

BALTIMORE, MD.—Plans are being prepared for the removal into new quarters by C. R. Mizner, Baltimore representative for the Oldsmobile. The new quarters, consist-

ing of an up-to-date showroom and machine shop, are located at 1419 North Charles street.

MACON, GA.—Plans have been perfected for the transfer to this city of the Howard Automobile Company of Jackson, Mich. General Manager J. E. Keith of this company has announced that work will begin in a very short time upon a new factory to cost \$200,000.

SEATTLE, WASH.—As the result of a visit of Chas. P. Henderson, general manager of the Henderson Sales Company, to Seattle, negotiations were completed with the F. H. Barshar Company, of 1107 East Pike street to handle the Cole products in Seattle and western Washington.

COLUMBUS, O.—Alleging debts in excess of \$1,000 a petition has been filed against the Radio Manufacturing Company of Columbus, O., asking that the company be declared bankrupt. The Radio Manufacturing Company was recently formed to manufacture automobile parts and accessories.

SEATTLE, WASH.—Charles R. Williams, who is well known to the automobile fraternity through his 2 years' connection with the Northwest branch of the Winton Motor Car Company in Seattle, has recently established the Auto Brokerage Company, at 307 East Pike street.

TOLEDO, O.—The Willys-Overland Company, this week through its attorney Rathbun Fuller, filed with the city council of Toledo, a petition asking for the vacation of a number of streets and alleys in Cycledale addition. The company is now in possession of this entire addition to the city and as soon as the streets and alleys are vacated will erect a number of large additions to its plant.

WASHINGTON, D. C.—Uncle Sam is in the market for 2 motor-driven combination fire engine and hose wagons to be used in the Panama canal zone. Bids for furnishing the fire apparatus will be opened by the Isthmian Canal Commission in Washington, on October 30. Rigid specifications for the machines in question have been

drawn up and it is stipulated the machines must conform in every particular with the specifications.

BALTIMORE, MD.—Plans have been made by the Mar Del Mobile Company for an extension of The Garage, Mt. Royal avenue and Charles street. The proposed addition will be 62 x 120 feet, which, with the present building, will give the garage a floor space of 100,000 square feet. This addition will afford a separate room for furnishing gasoline for motor cars in which a number of machines can be supplied simultaneously and a repair room with machinery and appliances.

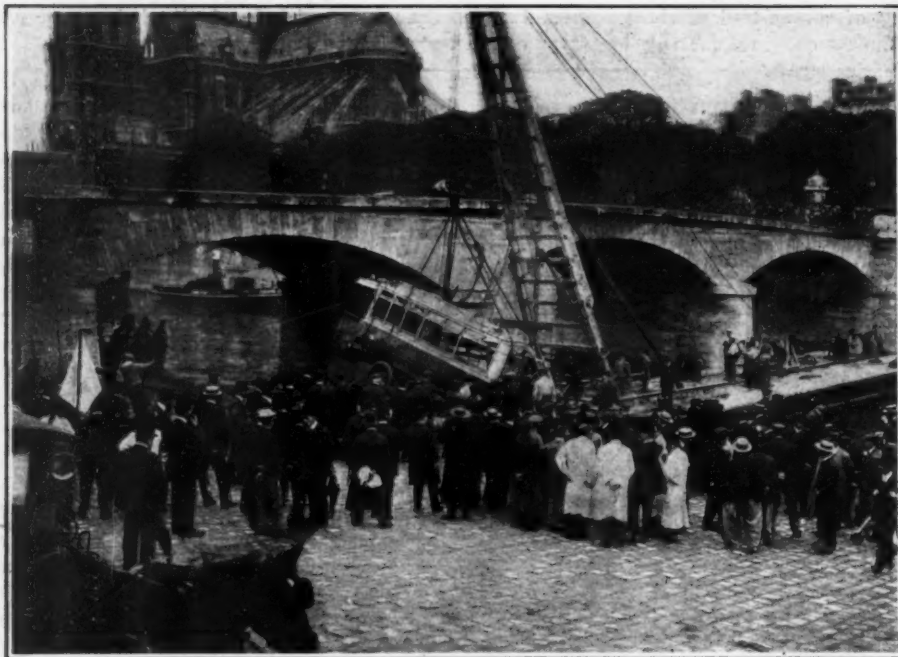
INDIANAPOLIS, IND.—The Manufacturers' Bureau of Indiana, which includes in its membership 1,200 manufacturing concerns of the State, has taken up the question of organizing an employers' mutual liability insurance company. Companies writing employers' liability insurance in Indiana have advanced their rates 40 per cent. since January 1, owing to recent changes in the employers' liability law. The bureau has appointed a committee to report within 60 days some plan for forming a mutual company.

NEW YORK, N. Y.—Mr. A. Massenat, who has represented the Panhard and Levassor Company in this country for many years, formally announced his retirement from active control. Mr. Gustave Prost, who has for some time been connected with the concern, will take active control. He has been with the American Branch of Panhard and Levassor for seven years. Howard S. Hamilton will occupy the position of assistant manager and will have charge of the sales department, assisted by Herbert K. Levick.

KOKOMO, IND.—The Kokomo Rubber Company has been reorganized, F. I. Willis of Indianapolis, and G. H. Hamilton, until recently New York agent for the Continental Rubber Co., having bought stock in the concern. Officers of the reorganized company are: President, D. C. Spraker; vice-president F. I. Willis; treasurer, D. L. Spraker; secretary, William F. Langdon



The selling force of the Flanders company as it met at the New York headquarters



The recent automobile accident in Paris—hoisting up the auto bus which fell into the Seine

and sales manager, G. H. Hamilton. A reorganization of the Hearsey-Willis Company, of Indianapolis, has also been found necessary, F. I. Willis, who has been secretary and treasurer, becoming vice-president. Robert H. Colburn, has been elected secretary and treasurer of the company.

CHILLICOTHE, O.—The ArBenz Car Company is the new name recently adopted by the Scioto Auto Car Company.

MONTGOMERY, ALA.—The Drennan Motor Car Company of Jefferson County, has increased its capital stock from \$5,000 to \$50,000.

DETROIT, MICH.—E. J. Miles has been placed in charge of the experimental department of the Studebaker Corporation. He is a metallurgist of large experience.

CLEVELAND, O.—The Judd Automobile Company, 1206 Huron Road, has added to its general garage and salesroom a tire repair shop known as the Judd Tire Company.

DETROIT, MICH.—Joseph E. Warren has associated himself with the Metzger Motor Car Company and will be chief of district managers, under sales manager W. C. Hood.

MILWAUKEE, WIS.—The Smith-Hoppe Auto Company, 114 Mason street, has been appointed state agent for the R. C. H. car. The firm now represents the Hupp-Yeats electric, Oakland and Oldsmobile.

MEMPHIS, TENN.—H. R. Stone was appointed receiver of the Hazen Automobile Company by Chancellor Francis Fentress. A bill filed against the company by the Security Bank and Trust Company was declared a general creditor's bill.

DETROIT, MICH.—The Goodfellow Tire Company has given a trust mortgage to

Austin L. Richardson, as trustee, to secure creditors with claims aggregating \$6,000. The mortgage covers the concern's plant at Woodward avenue and the Boulevard.

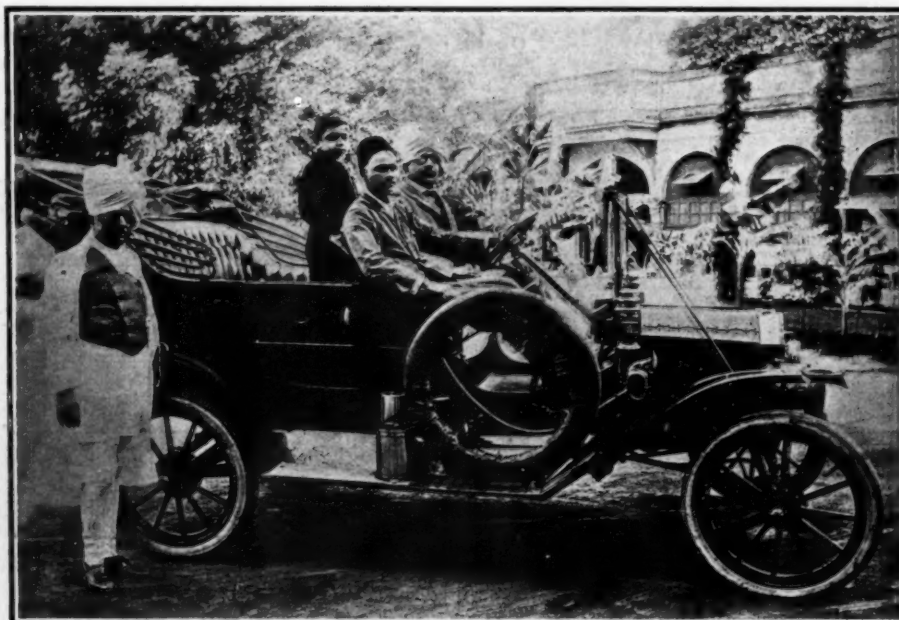
DETROIT, MICH.—The entry of the Ford Motor Company into the manufacture of light delivery wagons is one more example of the turning of attention to makers of commercial vehicles. The Ford delivery wagon is built on the model T chassis and uses the left-hand control as in the touring car.

CITY OF MEXICO, MEX.—It is reported that a syndicate of Americans, headed by L. H. Morrison, formerly of Indianapolis,

will establish a large plant in Mexico for the manufacture of automobiles. Application for a concession for the proposed plant will be made to the federal government. The factory will be located either in this city or in Monterey, it is stated. The demand for automobiles in this country is rapidly increasing. At present many of the cars are brought from Europe.

MILWAUKEE, WIS.—A number of Milwaukee dealers took advantage of the opportunity offered by the holding of the International Dairy Show in Milwaukee last week to make exhibits for the benefit of dairymen and agriculturists. Among those who had exhibits was George W. Browne, State agent for the Overland; the Milwaukee branch of the Buick Motor Co.; Bates-Odenbrett Automobile Co., Abbott-Detroit, and the Charles Abresch Co., Halladay and Colby. The Abresch-Cramer Auto Truck Co. exhibited a line of commercial vehicles.

RACINE, WIS.—The Mitchell-Lewis Motor Co., of this city, has elected to come within the provisions of the new workmen's compensation or industrial insurance act passed by the last Wisconsin Legislature. The company employs more than 2,000 workmen. The law eliminates litigation and the incident expenses of suits and the industrial commission fixes the rates of compensation for injury and death from accidents in the line of duty. Motor car manufacturers as a class receive the benefit of exceptionally low rates in the schedule recently prepared by the commission, as the occupation is considered less hazardous than most other industries. The Mitchell-Lewis Co. is the first Racine industry to apply for the rights under the new law, which is optional with employer as well as employee.



The prince of Phaumagar, India, enjoys riding in a Ford which is driven by a native chauffeur

DETROIT, MICH.—A service department has been established by the recently organized General Motors Truck Company, with T. P. Myers in charge as general service manager.

SYRACUSE, N. Y.—The Syracuse Motor Car Company has the agency for the Ford output in this city and has just received a new style delivery wagon, it being a closed car of 20 horsepower and having a capacity of 700 pounds.

AKRON, O.—A meeting of Swinchart branch managers, salesmen and agents was held September 29 and 30, at the office of the factory. There were more than forty in attendance. Plans and the policy for the ensuing year were discussed and agreed upon.

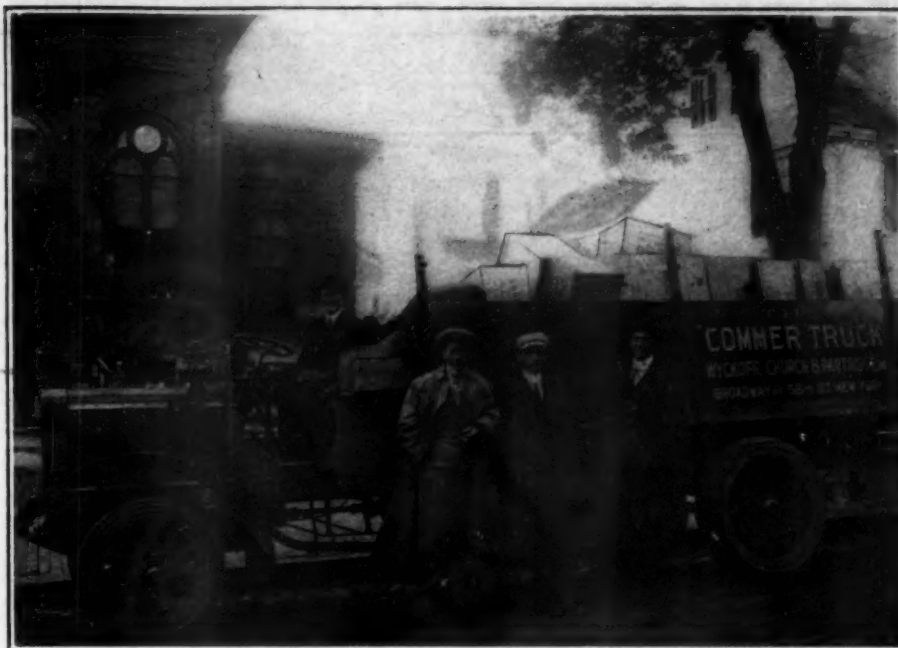
DETROIT, MICH.—S. L. Stone has tendered his resignation as assistant sales manager of the Oakland Motor Car Company, of Pontiac, to become general manager of the Centaur Motor Company, of Buffalo, which handles Oakland cars in western New York and Pennsylvania.

MILWAUKEE, WIS.—Leslie D. Flint has become associated with the Wisconsin Auto Sales Company, distributors for the Westcott, National, Herreshoff and Cutting. Mr. Flint will be in charge of the Westcott sales in Minnesota, Iowa, the Dakotas and Montana, with headquarters in Minneapolis.

JEFFERSON, WIS.—The Kenzler-Waverly Motor Company, a consolidation of the Kenzler-Waverly Motorcycle Company, of Cambridge, Wis., and the Waverly Motor Manufacturing Company, of Milwaukee, Wis., has accepted the proposition of the Jefferson Promoters' club to locate the consolidated works in this city. The plant will be in operation by December 1.

KENOSHA, WIS.—The Purdy Garage Company has been incorporated here to succeed to the business of the Kent Motor Car Company, which was recently purchased by Frederick Purdy. The Kent garage on Church street will henceforth be known as the Purdy Garage. C. H. Nellis, who was associated with the Kent brothers has joined the Purdy company.

CHICAGO, ILL.—The Chicago Motor Transportation Company, a \$3,000,000 corporation, has dispensed with its horse-drawn 'buses between the depots and the retail section of the city and has introduced motor 'buses, each of which has accommodation for eighteen passengers besides the driver. These are pay-as-you-enter 'buses with a side entrance on the right and an exit in rear. The fare from the depots to any of the large stores is 10 cents. This is in strong contrast with a fare of 50 cents for horse-drawn cab service. The new 'buses operate on a regular time schedule over a definite route. The 'bus bodies are built on 1 1-2-ton White chassis.



The 4½-ton Commer truck which made a fine economy showing during the recent Boston truck contest

DETROIT, MICH.—The Studebaker Corporation entertained dealers from New York and the New England States during the past week, general manager Flanders acting as host.

SHERMAN, TEX.—F. D. Welch of Amarillo and P. M. Shelton of Grayson county have formed a partnership and opened the Sherman Automobile and Vulcanizing Company at 207 East Houston street.

Automobile Incorporations

AUTOMOBILES AND PARTS

BOSTON, MASS.—Amplex Motor Co. of, New England; capital, \$25,000; to deal in automobiles. Incorporators: I. B. Spafford, Wm. Turner, Wm. B. Foster.

BROOKLYN, N. Y.—Osgood Motor Car Co.; capital, \$10,000; to make and deal in automobiles and supplies. Incorporator: Samuel H. Miskind.

CHICAGO, ILL.—South Shore Garage Co.; capital, \$12,000; to deal in taxicabs and automobiles. Incorporators: Chas. M. Mudge, L. C. Zward, E. A. Fleming.

EVERGREEN, ALA.—Evergreen Motor Car Co.; capital, \$2,000; to sell motor vehicles. Incorporators: C. P. Deming, H. W. Dunn and R. L. Whitcomb.

Fort Wayne, Ind.—Fort Wayne Auto Motor Co.; increased capital from \$50,000 to \$100,000.

GRAND RAPIDS, MICH.—Cogswell Motor Car Co.; capital, \$10,000; to make automobiles and parts.

LAFAYETTEVILLE, N. C.—Consolidated Motor Co.; capital, \$25,000; to make and deal in automobiles. Incorporators: H. Lutterloh, I. U. McKethan.

LINTON, IND.—Linton Garage Co.; capital, \$10,000; to sell automobiles. Incorporators: A. T. Custer, G. C. Porter, T. J. Holden.

NEW YORK CITY—Paul Lacroix Automobile Co.; capital, \$10,000; to make and sell motor vehicles. Incorporators: Paul Lacroix, Harry U. Kibbe, Harvey T. Andrews.

NEW YORK CITY—Harger Steam Truck Co.; capital, \$1,000,000; to manufacture and sell all kinds of vehicles. Incorporators: John S. Harger, Walter S. Wheeler, George F. Conis, James L. Weir, Gilbert E. Ofeldt.

NOWATA, OKLA.—Nowata Motor Car Co.; capital, \$2,500; to sell automobiles. Incorporators: Walter K. Campbell, George Gordon.

OSWEGO, N. Y.—Motor Specialties Co.; capital, \$175,000; to make engines and automobiles. Incorporators: Arthur Lovell, Howard H. Williams, H. V. Walsh.

PENDLETON, IND.—Forse Manufacturing Co., manufacturer of parts, increased capital from \$25,000 to \$40,000.

PETERSBURG, VA.—Overland Sales Co.; capital, \$5,000; to sell automobiles. Incorporators: T. J. Burgess, D. P. Weeks, D. H. Burgess.

PHILADELPHIA, PA.—Wm. H. Godshall Co.; capital, \$15,000; to make automobiles.

TOLEDO, OHIO—Ford Bros. Auto Sales Co.; capital, \$10,000. Incorporator: Guy R. Ford.

WICHITA FALLS, TEXAS—Wichita Motor Co.; to manufacture automobile trucks.

AUTOMOBILE GARAGES, ACCESSORIES

BUFFALO, N. Y.—James G. Barclay, Inc.; capital, \$25,000; to manufacture and sell accessories. Incorporators: James G. Barclay, Estella Barclay, George M. Kohl.

CAMDEN, N. J.—Eureka Double Resilient Tire Manufacturing Co.; capital, \$25,000; to make automobile tires. Incorporators: Gideon S. Adams, Harry Fox, John B. Fox, Edwin S. Orr, George Clements.

CHICAGO, ILL.—Chicago Motor Omnibus Co.; capital, \$1,000; to operate omnibuses. Incorporators: Henry P. Schandler, J. M. Johnston, K. Cornwell.

CHICAGO, ILL.—University Taxi Service Co.; capital, \$2,500; to operate taxicabs. Incorporators: Frank H. Drury, W. Perry Hahn, Walter D. Launder.

CLEVELAND, OHIO—Broadway Garage & Livery Co.; capital, \$10,000. Incorporator: Frank Paprock.

DONALDSONVILLE, LA.—Donaldsonville Garage & Automobile Supply Co., Ltd.; capital, \$10,000; to do garage and accessories business. Incorporators: James P. Kock, A. A. Sarradet, Adolph Netter.

JERSEY CITY, N. J.—Sterling Top & Equipment Co.; capital, \$50,000; to manufacture automobile equipment. Incorporators: Frank Grundy, Wm. C. Rands, George Copp.

NEW YORK CITY—Kelly-Springfield Rubber Tire Co.; capital, \$10,000; to deal in rubber tires. Incorporators: Albert O. Briggs, Chas. W. Stapleton, Richard Condon.

PEORIA, ILL.—C. W. Haas Tire Seal Co.; capital, \$50,000; to make automobile tires and rubber goods. Incorporators: C. W. Haas, R. C. Uckens, Emmet C. May.

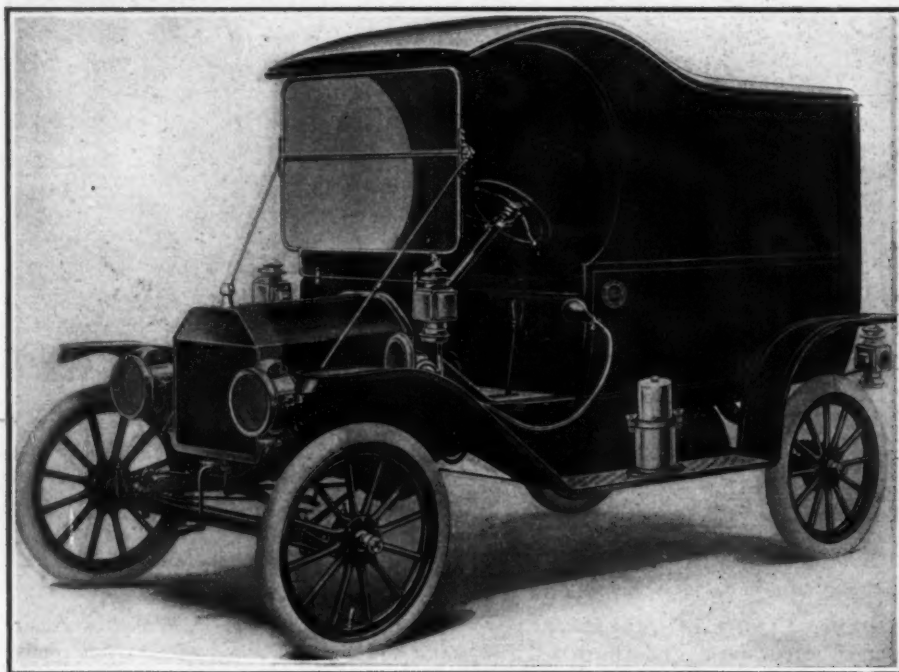
RICHMOND, VA.—Louis Bremm Estate; capital, \$7,000; to build garage.

SAN DIEGO, CAL.—Savage Tire Co.; capital, \$1,000,000; to manufacture steel automobile tires.

ST. LOUIS, MO.—Wrought Iron Range Co.; capital, \$3,000; to build garage.

SHERMAN, TEX.—Sherman Automobile & Vulcanizing Co. Incorporators: F. D. Welch, P. M. Shelton.

OF INTEREST *to the* INDUSTRY



The new type of 700-pound delivery wagon constructed by the Ford Motor Company for the 1912 season.

INDIANAPOLIS, IND.—Cole 30-40 automobiles will be handled by a number of new agencies among which are the Cole Motor Company, of Wichita, Kan., Ohnhaus Automobile Company, Fort Wayne, Ind., The Norcross Garage, Worcester, Mass., Central Auto Company Terre Haute, Ind., Curtiss Scofield, Newark, N. Y., Baker Bros. Motor Car Company, Buffalo, N. Y., The Penn Auto Company, Scranton, Pa., Burke Motor Car Company, Chattanooga, Tenn., C. A. Winter, Wellsville, Kan., Fred Bihl, 220 Dolorosa street, San Antonio, Tex., and The Philadelphia Motor Company, Philadelphia, Pa.

BALTIMORE, MD.—The A. G. Alford Sporting Goods Company, 212 East Baltimore street, has the exclusive agency for Ajax tires.

BALTIMORE, MD.—Among the latest cars added to the local field is the Cutting. The agency for this district has been placed with the Rice Garage.

FALL RIVER, MASS.—T. N. Paquin & Sons, South Main street, Fall River, Mass., have been appointed Kissel agents for Fall River and locality.

NEW BEDFORD, MASS.—A. E. Perron, 900 Belleville avenue, has been appointed selling agent for the Kissel cars and trucks for New Bedford and vicinity.

PROVIDENCE, R. I.—The Kissel Kar Company has been appointed selling agent for the Kissel line of cars and motor trucks for the city of Providence and vicinity.

KANSAS CITY, Mo.—The J. A. Davis Motor Car Company has taken the agency for the Thomas line. Mr. Davis has been

connected with President Chalfant of the Thomas company for over eight years.

AKRON, OHIO.—Fred Kast has been appointed manager of the Cleveland branch of the Firestone Tire & Rubber Company. Mr. Kast is an Akron man and has for some time been at the Chicago branch of the same concern.

DETROIT, MICH.—The Ford Motor Company has recently established branches at Memphis, Tenn.; Los Angeles, Cal.; San Francisco, Cal.; and Vancouver, B. C. These cities will be Ford headquarters in the respective territories.

PROVIDENCE, R. I.—The Rhode Island Licensed Automobile Dealers have announced the date for the coming Providence show, which will be held in the Providence State Armory, from January 22 to 28. The main drill hall, having an area of 38,000 square feet, will be used to display pleasure cars, and half as much space will be devoted to commercials.

AKRON, OHIO.—At the annual convention of the Firestone Tire & Rubber Company, which was recently held in this city, announcement was made that the factory which has just been completed at a cost of \$1,250,000 will be devoted to the manufacture of tires while the old plant will be used in making rims.

NASHVILLE, IND.—Dr. F. L. Musselman, of Trafalgar, Ind., who recently purchased a sanitarium here, is planning to operate a motor bus line from Nashville to Bloomington, Columbus and Franklin. as Nashville is without railroad connections. A general motor car passenger carrying

business will be conducted along this route.

BALTIMORE, MD.—Harry N. Baetjer and G. Ridgely Sappington have been appointed receivers for the Pullman-Shaffer Motorcar Company in the United States District Court here. The petition for the appointment of receivers was filed by the Chesapeake Tire and Rubber Company and the Baltimore Buggy Top Company.

CHICAGO, ILL.—The Cadillac Automobile Company, local representative of the Cadillac, has decided to erect a new five-story building at the northwest corner of Michigan avenue and Twenty-third street, opposite the Thomas branch. It is expected the new building will be completed by January. The lot is 75 by 165 feet and the Cadillac has a 20-year lease. The investment will total \$275,000.

FINDLAY, OHIO.—Another big plant in the Middle West will be added to the chain of properties constituting the United States Motor Company by the establishing of a special factory to manufacture parts for the Maxwell-Briscoe Motor Company, the Columbia Motor Company, the Dayton Motor Car Company, the Brush Runabout Company and the Alden-Sampson Manufacturing Company. A representative has already visited Toledo.

PHILADELPHIA.—In the purchase of fifty Packard trucks by the Acme Tea Company there is recorded what is said to be the largest single order for motor vehicles ever placed in the United States if not in the world. The order was booked by the Packard Motor Car Company of Philadelphia. It calls for thirty three-ton trucks and twenty of the one and one-half to two-ton size. The purchase represents an investment of about \$150,000.

BOSTON, MASS.—Charles G. Andrews and M. A. Dykeman have formed a partnership named Andrews, Dykeman & Company, to handle the Moon cars in the Hub. Mr. Andrews has handled the Moon as a sub-agency, but the new firm will have the entire New England territory. Salesrooms have been secured in the motor mart, Park square, formerly used by the Alco and Stoddard-Dayton agencies. Mr. Dykeman has sold, among others, Stevens-Duryea cars.

PITTSFIELD, MASS.—A special stockholders' meeting of the Jacobson-Brandow Company voted to increase the stock from \$25,000 to \$95,000, and it was decided to have five instead of three directors. Douglass P. Wesson, of the Smith & Wesson Company, Springfield, Mass., was elected a director and Harry G. Tucker, formerly with the Curtis Publishing Company, was also elected a director. The officers of the company are as follows: E. B. Jacobson, president and general manager; Douglass P. Wesson, vice-president; Harry G. Tucker, treasurer.

PATENTS GONE TO ISSUE

ENGINE-STARTER.—An apparatus operating by means of an air and fuel pump.

This device (Fig. 1), which is used in combination with an internal combustion engine and a source of fuel, contains an air pump which is connected to the engine and a fuel-measuring device connected to the source of fuel. The pump consists of a cylinder, piston and a manually operable plunger connected with the piston. The fuel measuring device is in shape of a valve having abutments which co-operate when the plunger is at its inward position, so that the valve may be turned by the plunger. The valve is adapted to discharge into the connections between engine cylinder and fuel supply.

No. 1,005,541—to Edward A. Halbleib, Rochester, N. Y., assignor to Northeast Electric Company, Rochester, N. Y. Granted October 10, 1911; filed December 16, 1910.

LAMP-DIMMING DEVICE.—Burner is movable by hydraulic pressure.

The construction protected by this patent is a combination of a lamp and reflector with a burner normally located opposite the reflector. The burner has a laterally projecting member, and by means of a fluid forced against this member the burner may be moved from its position opposite the light reflector. Means are also provided to limit the movement of the burner from its normal position.

No. 1,005,197—to Warren A. Greenlaw, Melrose, Mass. Granted October 10, 1911; filed January 3, 1911.

RUNNING-GEAR.—A method of chassis suspension for motor vehicles.

2. This patent refers to the combination of a frame, a front axle, an upper connecting member on the under side of the frame and a lower connecting member having its center housed within the upper

member and its ends arranged over the ends of the axle. Through the centers of the members a sleeve is so inserted as to pivotally connect same, springs being arranged between the ends of the lower member and the axle, and bumpers between the upper and lower connecting members; there are also springs provided on the bumpers mentioned.

No. 1,005,171—to David M. Dearing, Jackson, Mich. Granted October 10, 1911; filed November 12, 1909.

LIFTING JACK.—Worm wheels and friction device are combined in jack construction.

3. This jack (Fig. 4) contains a standard in which a vertical lifting screw may be raised or lowered. A worm wheel is rigidly secured to the screw. A removable hanger is adapted to be mounted on the lifting cylinder or standard, and it carries a horizontally disposed worm which is operated by a crankshaft. The hanger also carries a friction device adapted to engage the crankshaft when the shaft is rotated in one direction.

No. 1,005,479—to Herrman A. Schatz, Chappaqua, N. Y., assignor to Acme Ball Bearing Company, Chappaqua, N. Y. Granted October 10, 1911; filed January 17, 1908.

CARBURETER.—Having two fuel reservoirs.

4. The carbureter (Fig. 5) to which this patent refers contains a main reservoir, a mixing chamber adapted to communicate therewith, a fluid inlet to the reservoir and a mixture outlet from the mixing chamber. An auxiliary reservoir is provided which has communications with the main reservoir and the mixing chamber; the auxiliary reservoir has an air inlet adapted to discharge air beneath the fluid level therein. There is provided a main air valve and a port of exterior of the air valve adapted

to deliver a supply of air and fluid from the auxiliary reservoir to the outlet.

No. 1,005,491—to Alfred Weiland, Philadelphia, Pa. Granted October 10, 1911; filed January 21, 1909.

COMBINED SIGNAL AND SIGN DISPLAY LAMP.—System for automobile tail lamps.

1. The patent relates to a frame for holding individual interchangeable letter or number plates, comprising ends, top and bottom having parallel inwardly projecting flanges at their opposite front and rear edges forming longitudinal slideways for the plates, the top being provided with an opening at one end to admit one plate at a time into the slideway, a method of securing the closing means in place over the opening.

No. 1,005,306—to Almor Manor Puckett, San Antonio, Tex. Granted October 12, 1911; filed December 1, 1910.

INTERNAL COMBUSTION ENGINE.—Construction of the Diesel compressed-air ignition type.

1. The patent relates to the combination, in an engine of the type mentioned, with the engine cylinder, of a combustion chamber in which is arranged an atomizer nozzle containing a cut-off valve, which is normally held in closed position. A pump is provided to force a liquid fuel through the nozzle past the cut-off valve; an overflow valve is also provided, as well as an operating lever for the pump actuated from the engine shaft. On a stud is mounted adjustably an eccentric, on which again is mounted a regulating lever adapted to control the overflow valve. A link connects the regulating lever with the one controlling the pump, whereby overflow valve and pump are operated according to the speed of the engine.

No. 1,005,457—to Friedrich Oberhaensli, Bregenz, Austria. Granted October 10, 1911; filed November 28, 1910.

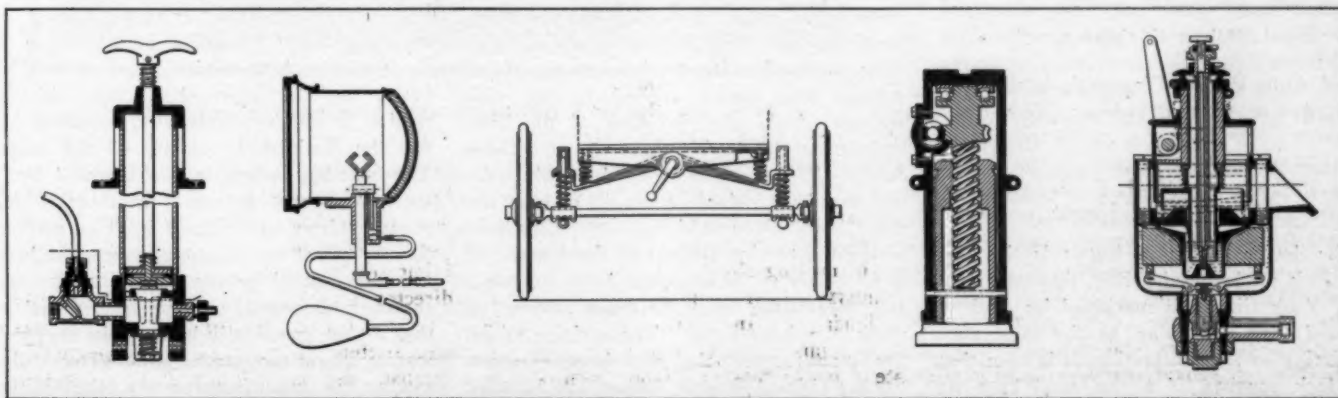


Fig. 1—Halbleib starter. Fig. 2—Greenlaw dimming device. Fig. 3—Dearing running gear. Fig. 4—Schatz jack. Fig. 5—Weiland carbureter

Newest Ideas Among the Accessories

Rapid Engine Cleaner

THE cleaner depicted in Fig. 3 serves for removing grease and dirt from parts of the automobile accessible or otherwise. One gallon of the cleaning fluid, which may be kerosene, gasoline or

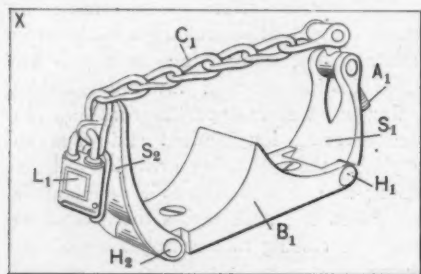


Fig. 1—B-A tire lock

tar oil, is filled into the tank through the filler hole ordinarily closed by means of filler cap F1, which is put in place after this operation. The tank is 20 inches high and has about 7 inches diameter. Then the pump P1 is worked, the air being led to the top of the tank where it presses on the liquid. This operation is continued until the gauge G1 on the top of the tank shows about 90 or 100 pounds. There is no difficulty in pumping up to this pressure in about five minutes, after which the tank is ready for use. If now the two cocks C1 and C2 are opened, the compressed air in the tank forces the oil up through the tube T1 and then through the hose H1 to the nozzle N1, where it is expelled in the form of a solid and fine but powerful jet. This will be efficacious in removing dirt, etc., if directed against the object to be cleaned. The

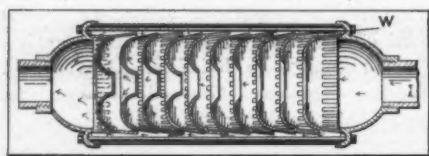


Fig. 4—Miller multi-chamber muffler

Rapid Auto Engine Cleaner is handled by Asch & Co., 1777 Broadway, New York City.

B-A Tire Lock

The device shown in Fig. 1 is the new tire lock made by the B-A Specialty Co., New York City, and marketed by Asch & Co., of 1777 Broadway, in the same city. Referring to the illustration, it is seen that the lock consists of a cast steel base B1 having a central divide to accommodate two tires. To this base two drop-forged

shackles S1 and S2 are hinged at H1 and H2, and chain C1, which is of hardened steel, is fixed to S1 by means of the adjustable link A1. This chain is laid over the tires carried in the lock, and fixed to shackle S2 by padlock L1. The chain is long enough to accommodate any size of tires; the lock is finished in hard rubber.

Acme Torsion Springs

The Acme torsion springs, shown in Fig. 2, are designed to prevent road shocks and vibration from being transmitted to chassis,

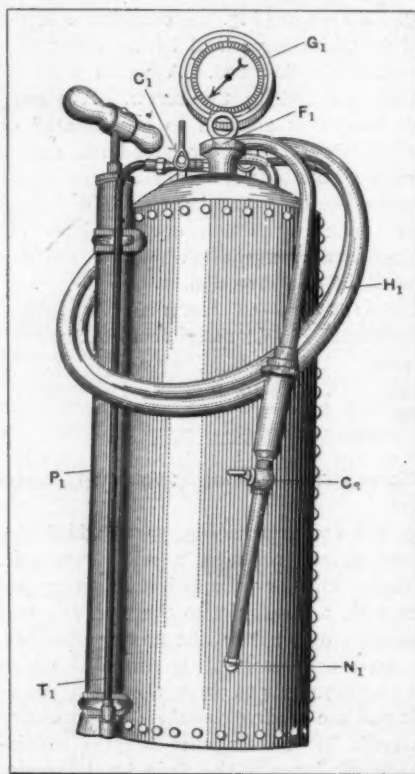


Fig. 3—Rapid engine cleaner

engine and body of the car, and to thereby relieve the tires of the shock absorbing service that is very frequently placed upon them. In the illustration Acme coiled springs are shown applied to the rear springs of the car, in place of the links connecting the leaf springs to the chassis frame. This work is easily done while the automobile is raised up on jacks, and the same bolts which hold the connecting links secure the torsion springs to the frame. It is necessary to lubricate the bolts copiously lest they suffer from the vast amount of work they have to do. The springs, which are manufactured by the Acme Torsion Spring Co., of Boston, Mass., are handled in the Metropolitan district by Frank Halpin, 9 Church street, New York City.

The Miller Muffler

The Miller muffler, shown in Figs. 4 and 5, is of the multi-chamber type and of cylindrical form. The exhaust gases of the motor enter on one end and after passing through eleven separate

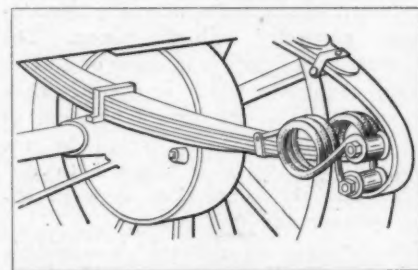


Fig. 2—Acme torsion spring

chambers leave at the other. The chambers are all of the same diameter, and stamped of steel in the shape of cups. As Fig. 4 shows, the entrance of each individual chamber is larger than its exit, so that part of the gases entering a chamber is bound to strike the rounded portion of the opposite wall, which is highly polished and imparts to the gases a whirling motion. This principle of operation is illustrated in Fig. 5, and the construction of the chambers forces the gases to leave them through the lateral passages and flow to the muffler outlet along the wall W (Fig. 4), because the central chamber outlets do not permit of passing of all the exhaust through them.

The whirling motion in the chambers serves to cool and expand the gases, and thereby to use up the inherent energy of the exhaust. Since the curved portions of

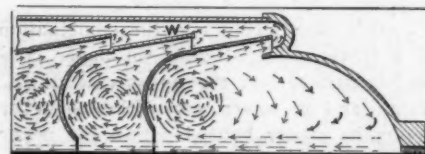


Fig. 5—Part section of Miller muffler

the chambers increase in size as the muffler outlet end is approached, the whirling motion would be continually increased but for the diminished velocity of the gases. The whirling effect is accompanied by a suction created in the chambers which tends to draw the exhaust into the muffler, thereby offsetting, to some extent, the back pressure caused by the same. In the last chamber no central opening is provided so that all the gas finally has to take the path leading along the muffler wall. The Miller muffler is manufactured by the Miller Silencer Company, Captain J. M. Miller, of 25 The Victoria, Washington, D. C.